

Exhibit 9

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

_____)	
EXXON MOBIL CORPORATION,)	
)	
Plaintiff,)	
)	
v.)	Civil Action Nos. H-10-2386 (LHR)
)	H-11-1814 (LHR)
UNITED STATES OF AMERICA,)	
)	
Defendant.)	
_____)	

DECLARATION OF RICHARD LANE WHITE

I, Richard Lane White, declare as follows:

1. I am over 18 years of age, and I am fully competent to make this declaration. I reside at 1230 River Road, Plainfield, New Hampshire 03781. I have personal knowledge of the facts set forth in this declaration and am competent to testify to them if necessary. All of the facts stated herein are true and correct.

2. I am a Director at Gnarus Advisors LLC ("Gnarus"), an economic consulting firm based in Arlington, VA. I joined Gnarus in October 2009. Previously, I was a director at LECG between 2001 and 2009. Prior to that, I was a Senior Vice President at PHB Hagler Bailly, Inc. (and its predecessor Putnam, Hayes & Bartlett, Inc.) between 1987 and 2001. My responsibilities at LECG and PHB Hagler Bailly were largely directed at allocation engagements at hazardous waste sites. I have a B.A. from Willamette University (Salem, Oregon) and a M.P.P. from Harvard University (Cambridge, Massachusetts). As a member of Gnarus' Environmental & Natural Resources practice, one of my key areas of specialization is the allocation of environmental response costs in the context of Superfund contribution matters. I

have conducted similar work while at LECG and PHB Hagler Bailly. I have published on a variety of cost allocation topics, and have provided expert testimony in both state and federal courts. As part of my work, I have provided expert testimony on allocation issues in two of the largest environmental bankruptcy cases in the United States: *Asarco* and *Tronox*.^{1,2} My educational background, positions I have held, publications, and prior testimony are truly and correctly listed in my *curriculum vitae* (and Rule 26 disclosure) attached hereto as **Attachment 1**.³

3. I have been retained by counsel for Exxon Mobil Corporation (“ExxonMobil”) as an expert witness in the above-captioned cases to develop a framework for the allocation of response costs at the ExxonMobil’s Baytown and Baton Rouge chemical and refinery complexes (the “sites”).

4. In addition to this matter, I am currently retained as an expert on seven other unrelated cost allocation matters relating to sites located in various regions of the country.

5. Both of the sites at issue in these cases are large integrated oil refinery and chemical complexes, owned and operated by ExxonMobil and its predecessors. At each of these sites, the U.S. government also owned and and/or operated facilities related to the production of war products and/or components, including aviation gasoline (“avgas”) and avgas components

¹ *In Re: ASARCO, LLC, et al.*, United States Bankruptcy Court, Southern District of Texas (Corpus Christi Division), Case No. 05-21207. As part of the Asarco case I was deposed and/or provided trial testimony in a large number of the individual (site-specific) hearings. My testimony is listed in my CV.

² *In Re: Tronox, Incorporated, Tronox Incorporated, et al. v. Anadarko Petroleum Corporation and Kerr-McGee Corporation*, United States Bankruptcy Court, Southern District of New York, Case No. 09-10098 (ALG). My work in this matter was not in the bankruptcy case itself, but in a related case between Anadarko / Kerr-McGee and Tronox, which was heard by the bankruptcy court. My testimony in this matter is identified in my CV.

³ My CV lists all of my publications, and my Rule 26 disclosure of prior sworn testimony includes a listing of all my prior testimony (not limited to the prior four years).

(e.g., codimer, alkylate, etc.) production facilities, synthetic rubber plancors, and an ordnance works facility.

6. I have previously prepared an expert report in this case. My initial report, dated June 18, 2012, lays out in detail my allocation methodology for each of the sites and for the various areas within each site. My rebuttal report, dated December 17, 2012, and attached hereto as **Attachment 2**, addresses issues raised by Mr. Low's submitted report. In addition to my two expert reports, I have previously submitted a declaration, dated September 24, 2013.

7. I have reviewed the U.S. submissions, dated December 20, 2013, including the declaration of Mr. Low, which is focused on raising issues with respect to my allocation analysis. While much of what he raises is his attempt to describe my step-by-step analysis, I will leave that to my reports themselves, and focus on instead general approaches to allocation and the reasonableness of my approach here.

8. As a general criticism, Mr. Low raises the point that the various operations at the sites are all different – different areas, different activities (See Low Declaration, ¶ 13) and his criticism is that that my “combining” of these somehow fails to take into account key factors. Yet the fact remains, each site is an oil refining operation, and the various areas currently being remediated are all – each of them – addressing the contaminants typical of these types of operations. The process by which releases to the environment occur – as part of the refining and waste capture / treatment process – are fairly consistent and homogenous across each of the respective sites. In addition, wastes have indeed been commingled throughout the years at both sites, and that is an important factor that must be taken into account in developing an equitable allocation. Were it the case that some particular cost element was being “driven” by a different set of facts (*i.e.*, time, constituents, process, *etc.*) I would consider those in my analysis – and

where applicable, have done so —, but the general criticism that because I find many of these elements consistent similar, and therefore address them as a single process, simply derives from the fact that these areas are, in fact, the result of a similar process and timeframe.

9. Mr. Low's criticism implies an ability to distinguish the wastes and their sources that does not exist. These costs are not driven by a series of distinguishable events that might somehow be divided conveniently based up discrete historical events. Rather, these are costs driven by oil refining releases from plants that were oil refineries for decades. No such convenient divisibility exists, and the approach taken here is reasonable given the historical nature of the sites and their operations.

10. In criticizing my waste generation factors (factors used to adjust raw production volumes), Mr. Low continues to assert that there is no relationship between the quantity of waste sludge generated at each facility and the contamination now subject to investigation and remediation. While the sludge itself is not the subject of the allocation (since the sludge removal costs are not being claimed), sludge generation rates are a proxy for the effectiveness of plant-wide waste processing efficiencies designed to release less waste from the oil refining process. It cannot be refuted that these activities, undertaken shortly after World War II, significantly reduced the amount of waste generated (on a per-barrel basis) from the plant. The waste effluent, which is the source for the contamination now found at each site, was unquestionably improved by these measures.

11. The concept behind a production-based allocation is straightforward. In the absence of direct evidence on the quantity of waste being generated, throughput or production data are used as a proxy for scaling the operation, and in tandem, adjustment factors are employed to scale these production data to reflect changes in processes that demonstrate changes

in waste generation. For example, stack emissions can be estimated based on production, but must be adjusted to reflect changes in scrubber technology or other processes that affect the amount of pollution released into the environment.

12. The type of surrogates and process efficiencies that are included in my analysis are reasonable, appropriate, and consistent with allocation procedures at other similar sites. The use of sludge reduction data and reduction of oily effluent data are reasonable proxies for assessing the environmental performance of the refineries and should be used in these cases to assess waste improvements at the sites. The examination of and analysis of contemporaneous company documentation generated in the 1940s through 1960s is reasonable as a basis for calculating process improvements and I have used similar documentation in performing allocations at other historical industrial sites.

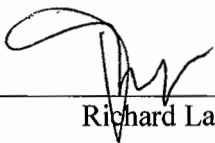
13. Our disagreement is not over the appropriateness of a production-based allocation, but whether there are data available to reasonably estimate both aspects of such an approach: quantity of production, and waste generation efficiencies. With respect to production data, those are available and have been fully produced. Thus, the crux of our disagreement is over the documentary evidence that demonstrate quantifiable improvements to waste processing, and whether they are relevant and reliable. I have opted to examine and apply them in what in my opinion are appropriate ways; Mr. Low has chosen to ignore them.

14. As a consequence, his analysis is based on an "equal per year" approach where there are no changes to the level of either production, or process improvement. The data on each of these factors simply does not support that conclusion. It is simply inconceivable that these plants were generating the same quantity of waste (per barrel of production) in 1970 or 1980 as they were generations before. The combination of environmental regulation and technology

alone would argue against such an “equal per year” framework. Further, to employ that framework would mean that the various lengthy and expensive programs undertaken at each facility – specifically designed to reduce pollution – were of no value, despite the contemporaneous data that demonstrate otherwise.

15. In sum, I believe that my approach as reflected in my report accurately reflects a production-oriented surrogate approach to allocation in these cases, given the historical operations that have been conducted at both sites.

I declare that the foregoing is true and correct under penalty of perjury of the laws of the United States. Executed on January 21, 2014.



Richard Lane White 1/21/14

Attachment 1



Richard Lane White

Director

Richard Lane White

Director

Gnarus Advisors LLC

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Waltham, MA 02451

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Education and Professional

- MPP, Harvard University, 1985
- B.A. (Economics, History, Political Science),
Williamette University, 1983

Previous Employment

- LECG, LLC
- PA Consulting Group (successor to PHB Hagler Bailly)
- PHB Hagler Bailly (Putnam, Hayes & Bartlett, Inc.)
- Putnam, Hayes & Bartlett, Inc.

Professional Affiliations

- Member, American Bar Association,
Litigation and Environment Sections
- Member, American Economic Association
- Associate, Environmental Law Institute
- Member (former), Boston Bar Association,
Environmental Section
- Member (former), Information Network for
Superfund Settlements
- Member (former), editorial board, *Strategic
Environmental Management*

SUMMARY

Rick White is a Director with Gnarus Advisors LLC and has more than two decades of experience consulting to private clients on a range of environmental and insurance coverage issues.

One of Mr. White's areas of focus regards the allocation of costs at hazardous waste sites. Mr. White is an expert in the evaluation and analysis of liability, allocation and related issues faced by parties at Superfund sites. He has served as a neutral allocation consultant, an allocation expert for contribution cases, and has directed a number of allocation engagements on behalf of clients. Mr. White is a frequent contributor to environmental journals where he discusses a variety of cost allocation issues.

Another area of Mr. White's focus regards cost estimation techniques used to forecast future environmental cleanup. Mr. White is an expert in the development and application of probabilistic cost models and frequently works with other Gnarus experts on issues related to forecasting future site cleanup costs. Mr. White has provided expert testimony in this area.

Another area of Mr. White's focus regards the evaluation of NRD claims. Mr. White is an expert in the evaluation of economic and financial modeling issues related to NRD claims. Mr. White has provided expert testimony in this area.

Another area of Mr. White's focus regards the analysis of cost claims and allocation of those claims to insurance policies in the context of environmental and product liability insurance coverage matters. He has written on a range of insurance allocation topics, presented insurance allocation methodologies for seminars, and provided expert testimony on insurance allocation issues.

PROJECT EXPERIENCE

Cost Allocation at Superfund and Hazardous Waste Sites

Mr. White has served as a neutral allocation consultant and as an expert in contribution suits. He has worked on sites in every region of

Environment & Natural Resources • Product Liability & Mass Torts • Economic Analysis • Association Management

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the country and on a range of sites (e.g., landfills, groundwater plumes, battery breaking operations, manufactured gas operations, tolling operations, pesticide plants, mining operations, and incinerator sites).

- For a coalition of industrial parties at the Beacon Heights landfill (Region I), he has served as the neutral allocation consultant and the allocation expert for the contribution suit (*B.F. Goodrich v. Murtha*) where he recently provided expert testimony on cost allocation issues. As part of his analysis, he has prepared a multi-volume allocation report and assisted litigation counsel with its cash-out settlement offers. The *Murtha* suit involved more than 300 municipal, commercial and industrial waste generators.
- For the industrial parties at the Chemical Control Corporation site (Region 2), he served as the neutral allocation consultant. He worked with the committee on its federal settlement and internal *de minimis* buyout proposal and conducted an audit of USEPA's waste-in list to determine whether it could be used as a basis for adding additional volumetric data supplied by the PRPs. As a result of his work, an additional 50 parties and new sources of documents were identified.
- For the industrial parties at Operating Industries, Inc. landfill (Region 9), he managed the team that developed a waste-in list and conducted a separate analysis of the waste streams generated by a number of municipalities as a part of a third-party contribution suit (*Transportation Leasing v. Caltrans*). He worked closely with counsel on the *de minimis* settlement negotiations.
- For a private party he directed the allocation analysis at a major Region III groundwater NPL site in a contribution case with cleanup costs exceeding \$125 million.
- On behalf of ASARCO LLC he has provided testimony on cost allocation issues at many of the sites in the ASARCO Bankruptcy proceeding.
- He has been reviewed and approved by USEPA to serve as an allocation expert in the ongoing USEPA Allocation Pilot project.

Environmental Cost Estimation

Mr. White frequently works with other Gnarus experts whose primary role is the development of future cost estimates at environmental sites. Mr. White frequently assists those experts with related economic,



finance and modeling issues.

In the ASARCO bankruptcy, for example, Mr. White provided expert testimony on the appropriateness and application of probabilistic cost analysis and Monte Carlo simulation modeling, as well as related issues as to timing and discounting, which were being employed by another Gnarus expert whose role was to forecast future environmental liabilities.

Natural Resource Damages

Mr. White has worked on the evaluation and development of NRD claims. In the ASARCO bankruptcy, for example, he served as ASARCO's expert on NRD where he evaluated NRD claims at numerous sites and provided deposition and trial testimony on potential NRD claims.

Environmental and Products Liability Insurance Coverage

Mr. White's work focuses on the development of allocation models to evaluate complex multi-year, multi-policy insurance coverage programs. He has worked on the allocation of asbestos, environmental, silicone breast implant and other product liability claims.

- For a Fortune 100 client, he has developed the allocation of more than \$1 billion in costs at more than 45 sites across 15 states among 60 insurance carriers. He is currently working with the client team on settlement, in advance of trial where he is expected to present testimony on allocation.
- For a variety of clients involved in potential litigation with their insurance carriers, he has evaluated site remediation issues, including cleanup technologies and allocation issues, at a number of NPL sites in Regions V and VI.
- For a major asbestos products manufacturer, he has evaluated the potential global liability that the company faces from current and future asbestos claims in order to estimate the future claims that party might make against its primary insurance policies, and modeled exhaustion of those policies in preparation for settlement with insurance carriers.
- For a major defense contractor, he managed the project team that developed the cost estimates and allocation analysis for their multi-site environmental insurance claim.



He also provided testimony on an allocation of environmental liability claims to various insurance carriers.

- For a Fortune 100 company, he directed the analysis for estimating and allocating claims in a major products liability case where the manufacturer sought recovery from its insurers. This work involved estimating the size of the product implant pool, payouts to claimants and allocation of costs incurred to various insurance carriers. As part of this work, he also evaluated asbestos, environmental, and other products claims for purposes of estimating future costs and allocation of these costs to responding carriers. He provided testimony on the allocation at deposition and trial.
- For a domestic subsidiary of a multi-national corporation, he evaluated the allocation of site costs at three New Jersey facilities and worked with the trial team to develop its allocation methodology and its responses to insurers' arguments and analysis from a special insurance master retained by the court.

CONFERENCES, PRESENTATIONS, AND SEMINARS

Allocations in Superfund Settlements Workshop, USEPA, Office of Enforcement, Superfund Division (January 23-24, 1992, Washington, DC).

Information Network for Superfund Settlements, INSS and Morgan, Lewis & Bockius, LLP (Various, 1990-2002).

"Insurance Allocation Methodologies: Approaches and Implications for Coverage," IBC Conference: *Optimizing Manufactured Gas Plant Insurance Recovery: Pursuing an Effective Settlement Strategy* (November 12-13, 1997, Chicago, Ill.).

Successfully Resolving Multi-Party Hazardous Waste Disputes: Alternatives to Litigation, American Arbitration Association and Clean Sites, Inc. (December 1, 1988, New York, NY).

"Anatomy of an Insurance Coverage Dispute," American Bar Association: *Environmental Litigation Midyear Meeting* (February 3,



2000, Steamboat Springs, CO).

"Cost Allocation in Private Cost Recovery Cases," The IBC Third Annual Executive Forum on Environmental Forensics: Understanding the Private Cost Recovery Litigation Process Workshop (June 6, 2000, Washington, DC).

"Order Out of Chaos: Basic Rules of Superfund Cost Allocation," The Villanova Environmental Law Journal Twelfth Annual Symposium: Allocation – Litigating Response Cost Contribution Claims Under the Federal Superfund Act (November 4, 2000, Villanova, PA).

Mealey's All Sums: Reallocation and Settlement Credits Conference, Mealeys Conference (November 8, 2004, Boston, MA).

PUBLICATIONS

"Second Circuit Reaffirms Key CERCLA Liability Principles," *Mealey's Litigation Report: Superfund*, Vol. 10, No. 1 (April 10, 1997).

"Examining Risk And Risk Premiums In The Buy-Out Of Environmental Insurance Coverage," with John C. Butler III, Charles J. Queenan III and Shameek Konar, *Mealey's Litigation Report: Insurance*, Vol. 11, No. 33 (July 1, 1997).

"The Debate Over Orphan Share Allocation," with Allen Kezsbom, *Chemical Waste Litigation Reporter*, Vol. 34, No. 3 (August 1997).

"EPA's New Municipal Liability Proposal Sidesteps Equitable Allocation By Courts," *Toxics Law Reporter*, Vol. 12, No. 11 (August 13, 1997).

Comments on USEPA's "Municipal Solid Waste Settlement Proposal," Submitted to the USEPA pursuant to notice in the *Federal Register* Vol. 62, No. 133, July 11, 1997, page 37231 (August 22, 1997).

"Unequal Superfund Treatment: CERCLA Dupli-City," *The Environmental Corporate Counsel Report*, Vol. 5, No. 7 (October 1997).

"No Need To Redefine Orphan Shares," with Allen Kezsbom, *Chemical Waste Litigation Reporter*, Vol. 34, No. 6 (November 1997).

"Applying Cost Causation Principles in Superfund Allocation Cases," with John C. Butler III, *Environmental Law Reporter*, Vol. 28, No. 2 (February 1998).

"Landfills: Superfund's Next Frontier?," *Strategic Environmental Management*, Vol. 1, No. 1 (Spring 1998).



"Aerojet Establishes an Objective Process for Evaluating Defense Costs," with John C. Butler III and Karl L. Killian, *Mealey's Litigation Report: Insurance*, Vol. 12, No. 26 (May 12, 1998).

"A Note on Cost Causation, Incremental Cost and Superfund Cost Allocation," submitted to USEPA pursuant to the public participation requirements of CERCLA (June 12, 1998) and subsequently published in *Mealey's Litigation Report: Superfund*, Vol. 11, No. 10 (July 1998).

"Will Insurance Allocation Ever Be Simple in New Jersey: Comparing Owens-Illinois and Carter-Wallace," *Environmental Claims Journal*, Vol. 10 No. 4 (Summer 1998).

"Proposed New ASTM Standards for Estimating Environmental Liabilities Signal a Preference for the Use of Decision Analysis and Expected Cost Analysis," with Shameek Konar, *Strategic Environmental Management*, Vol. 1, No. 3 (Spring 1999).

"Insurance Allocation in New Jersey: The Evolution of Carter-Wallace," *Journal of Insurance Coverage*, Vol. 1, No. 5 (Spring 1999).

"Basic Economic and Analytical Tools And Their Application in Environmental Analysis," with Shameek Konar, Chapter 5A in Vol. 1 of *Law of Environmental Protection*, (Sheldon M. Novick, ed.). Environmental Law Institute (March 1999).

"New Jersey's Highest Court Slams the Door on 'No Stacking' Advocates," with William W. Robertson and Jeffrey A. Cohen, *Environmental Claims Journal*, Vol. 11, No. 4 (Summer 1999).

"The Allocator's Challenge: Examining Basic Environmental Insurance Allocation Issues," *Conference Paper for the American Bar Association Section of Litigation Environmental Litigation Committee Midyear Meeting* (February 3, 2000).

"Eight Basic Rules of Superfund Cost Allocation," *Environmental Law Reporter*, Vol. 30, No. 3 (March 2000).

"Method or Madness: Basic Principles in Equitably Allocating Superfund Response Costs," The IBC Third Annual Executive Forum on Environmental Forensics: Understanding the Private Cost Recovery Litigation Process Workshop (conference paper). Washington, DC, (June 26, 2000).

Richard Lane White
Rule 26(A)(2)(B) - Disclosure of Trial / Deposition Testimony

Entry	Date(s)	Name of Case	Court	Law Firm / Attorney	Topic(s) Addressed	Testimony
1	06/15/1995	<u>Rockwell International Corp. v. Aetna Casualty & Surety Co.</u>	Superior Court, State of California, County of Los Angeles	Troop Steuber Pasich Reddick & Tobey, LLP Susan Page White, Esq.	Insurance Allocation	Deposition
2	05/27/1998 05/28/1998 05/29/1998	<u>B.F. Goodrich v. Murtha</u>	U.S. District Court (D. Conn.)	Pepe & Hazard LLP David E. Rosengren, Esq. Louis R. Pepe, Esq.	CERCLA Cost Allocation (Direct)	Trial Testimony
3	07/02/1998	<u>B.F. Goodrich v. Murtha</u>	U.S. District Court (D. Conn.)	Pepe & Hazard LLP David E. Rosengren, Esq. Louis R. Pepe, Esq.	CERCLA Cost Allocation (Rebuttal)	Trial Testimony
4	08/12/1999	<u>Ruetgers-Nease Corp. v. Occidental Chemical Corp.</u>	U.S. District Court (N.D. Ohio)	Thompson, Hine & Flory LLP Michael Hardy, Esq. Heidi Goldstein, Esq.	CERCLA Cost Allocation	Deposition
5	10/01/1999	<u>First State v. 3M</u>	Minnesota District Court (Second Judicial District)	Larson King LLP Dale Larson, Esq. Zelle, Hoffman, Voebel & Gette LLP James S. Reece, Esq.	Insurance Allocation	Deposition
6	02/10/2000	<u>First State v. 3M</u>	Minnesota District Court (Second Judicial District)	Larson King LLP Dale Larson, Esq. Zelle, Hoffman, Voebel & Gette LLP James S. Reece, Esq.	Insurance Allocation	Deposition
7	02/15/2000	<u>First State v. 3M</u>	Minnesota District Court (Second Judicial District)	Larson King LLP Dale Larson, Esq. Zelle, Hoffman, Voebel & Gette LLP James S. Reece, Esq.	Insurance Allocation (Direct)	Trial Testimony
8	04/26/2000	<u>Procter v. Lockheed Corporation</u>	Superior Court, State of California, County of Santa Clara	Troop Steuber Pasich Reddick & Tobey, LLP Clyde M. Hettrick III, Esq.	CERCLA Cost Allocation	Deposition
9	03/06/2002	<u>First State v. 3M</u>	Minnesota District Court (Second Judicial District)	Larson King LLP Dale Larson, Esq. Doug Skor, Esq.	Insurance Allocation	Pre-Filed Testimony
10	07/12/2002	<u>Rohm & Haas v. American Cyanamid</u>	U.S. District Court (D.N.J.)	Sills Cummis Radin Tischman Epstein & Gross, P.A. Philip R. Sellinger, Esq. Mark S. Olinsky, Esq.	CERCLA Cost Allocation	Deposition

Richard Lane White
Rule 26(A)(2)(B) - Disclosure of Trial / Deposition Testimony

Entry	Date(s)	Name of Case	Court	Law Firm / Attorney	Topic(s) Addressed	Testimony
11	09/13/2002	<u>RSR Corporation v. A.I.U. Insurance Company</u>	Texas District Court (Harrison County, 71st Judicial District)	Bickel & Brewer Deborah Deitsch-Perez, Esq. Michael Gardner, Esq.	Insurance Allocation	Deposition
12	02/19/2003	<u>RSR Corporation v. A.I.U. Insurance Company</u>	Texas District Court (Harrison County, 71st Judicial District)	Bickel & Brewer Deborah Deitsch-Perez, Esq. Michael Gardner, Esq.	Insurance Allocation	Deposition
13	06/30/2004	<u>First State v. 3M</u>	Minnesota District Court (Second Judicial District)	Larson King LLP Dale Larson, Esq. Doug Skor, Esq.	Fee Breakdown	Deposition
14	02/18/2005	<u>RSR Corporation v. A.I.U. Insurance Company</u>	Texas District Court (Harrison County, 71st Judicial District)	Bickel & Brewer Michael Gardner, Esq.	Insurance Allocation	Deposition
15	12/07/2005	<u>Reynolds Metals Company and ALCOA Inc. v. Whittaker Corporation</u>	U.S. District Court, Southern District Texas (Victoria Division)	BakerBotts LLP B. Daryl Bristow, Esq.	CERCLA Cost Allocation	Deposition
16	11/16/2006	<u>Robert M. Friedland v. TIC - The Industrial Company, et.al.</u>	U.S. District Court, Colorado	Faegre & Benson LLP Colin C. Deihl, Esq.	CERCLA Cost Allocation	Deposition
17	12/19/2006	<u>Viacom International, Inc. v. Admiral Insurance Company, et.al.</u>	Superior Court of New Jersey, Law Division, Somerset County	Robertson, Freilich, Bruno & Cohen, LLC Kevin J. Bruno, Esq. Paul, Weiss, Rifkind, Wharton & Garrison LLP Allan J. Arffa, Esq.	Insurance Allocation	Deposition
18	03/02/2007	<u>Thomas & Betts Corporation v. The Travelers Insurance Company, et.al.</u>	Superior Court of New Jersey, Law Division, Somerset County	Robertson, Freilich, Bruno & Cohen, LLC Jeffrey A. Cohen, Esq.	Insurance Allocation	Deposition
19	03/23/2007	<u>XIK Corp. et.al., and Honeywell International, Inc. and Domtar, Inc.</u>	Arbitration Reference Number 1220035101	Katten Muchin Rosenman LLP Russell B. Selman, Esq. Bradley S. Rochlen, Esq.	CERCLA Cost Allocation	Deposition

Richard Lane White
Rule 26(A)(2)(B) - Disclosure of Trial / Deposition Testimony

Entry	Date(s)	Name of Case	Court	Law Firm / Attorney	Topic(s) Addressed	Testimony
20	05/08/2007	<u>XIK Corp. et.al., and Honeywell International, Inc. and Domtar, Inc.</u>	Arbitration Reference Number 1220035101	Katten Muchin Rosenman LLP Russell B. Selman, Esq. Bradley S. Rochlen, Esq.	CERCLA Cost Allocation	Trial Testimony
21	07/18/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	Marten Law Group Linda R. Larson, Esq.	CERCLA Cost Allocation, Probabilistic Modeling & Discounting Issues	Deposition
22	08/09/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	Marten Law Group PLLC Linda R. Larson, Esq.	CERCLA Cost Allocation, Probabilistic Modeling & Discounting Issues	Trial Testimony
23	08/22/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Daniel M. Steinway, Esq. Tony M. Davis, Esq.	Natural Resource Damages, Probabilistic Modeling & Discounting Issues	Deposition
24	08/29/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	Natural Resource Damages, Probabilistic Modeling & Discounting Issues	Deposition
25	09/26/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	Probabilistic Modeling & Discounting Issues	Pre-Filed Testimony
26	10/05/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Michael McGovern, Esq.	Natural Resource Damages	Deposition
27	10/11/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Daniel M. Steinway, Esq. Tony M. Davis, Esq.	Natural Resource Damages, Probabilistic Modeling & Discounting Issues	Trial Testimony
28	11/02/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Michael McGovern, Esq.	Probabilistic Modeling & Discounting Issues, CERCLA Cost Allocation, Natural Resource Damages	Deposition

Richard Lane White
Rule 26(A)(2)(B) - Disclosure of Trial / Deposition Testimony

Entry	Date(s)	Name of Case	Court	Law Firm / Attorney	Topic(s) Addressed	Testimony
29	11/14/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Michael Heister, Esq.	Probabilistic Modeling & Discounting Issues, CERCLA Cost Allocation	Deposition
30	11/30/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Michael Heister, Esq.	Probabilistic Modeling & Discounting Issues, CERCLA Cost Allocation	Pre-Filed Testimony *
31	12/10/2007	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Michael McGovern, Esq.	Probabilistic Modeling & Discounting Issues, CERCLA Cost Allocation	Trial Testimony
32	04/16/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	CERCLA Cost Allocation	Deposition
33	04/18/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	CERCLA Cost Allocation, BNSF Damage Claim	Trial Testimony
34	04/22/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	CERCLA Cost Allocation	Trial Testimony
35	05/12/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Barton Seitz, Esq.	Probabilistic Modeling & Discounting Issues, CERCLA Cost Allocation, Natural Resource Damages	Pre-Filed Testimony *
36	07/15/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP Matthew Paulson, Esq.	CERCLA Cost Allocation	Deposition
37	09/17/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	CERCLA Cost Allocation	Deposition
38	10/03/2008	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	BakerBotts LLP J. Scott Janoe, Esq.	CERCLA Cost Allocation	Trial Testimony

Richard Lane White
Rule 26(A)(2)(B) - Disclosure of Trial / Deposition Testimony

Entry	Date(s)	Name of Case	Court	Law Firm / Attorney	Topic(s) Addressed	Testimony
39	05/12/2009	<u>In Re ASARCO, LLC.</u>	U.S. Bankruptcy Court, S.D. Texas Corpus Christi Division.	Marten Law Group PLLC Steven G. Jones, Esq.	CERCLA Cost Allocation & Natural Resource Damages	Deposition
40	08/19/2009	<u>Intalco Aluminum Corporation v. Central National Insurance Company of Omaha, et al.</u>	Superior Court, State of Washington (Whatcom County)	Robertson, Freilich, Bruno & Cohen, LLC Kevin J. Bruno, Esq.	Damages Estimation	Deposition
41	04/02/2010	<u>General Electric Company v. Joint Liquidators of EMLICO, Ltd., et al.</u>	Superior Court, Commonwealth of Massachusetts (Suffolk County)	McCarter & English LLP Arnold L. Natali, Jr.	Insurance Allocation	Deposition
42	04/09/2010	<u>Evansville Greenway and Remediation Trust v. Southern Indiana Gas and Electric Company, Inc., et al.</u>	U.S. District Court (S.D. Indiana - Evansville Division)	Michael D. Goodstein Hunsucker Goodstein & Nelson, PC	CERCLA Cost Allocation	Deposition
43	03/15/2011	<u>Nu-West Mining Inc., and Nu-West Industries Inc. v. United States</u>	U.S. District Court (D. Idaho)	Davis Graham & Stubbs, LLP Jonanthan W. Rauchway, Esq. Jerome DeHerrera, Esq.	CERCLA Cost Allocation	Deposition
44	01/19/2012	<u>Gull Industries, Inc. v. Safeco Insurance Company of America, et al.</u>	Superior Court, State of Washington (Skagit County)	Marten Law Group PLLC Steven G. Jones, Esq.	Cost Allocation	Deposition
45	02/17/2012	<u>In Re Trionox Incorporated, Trionox Incorporated v. Anadarko Petroleum Corporation and Kerr-McGee Corporation</u>	U.S. Bankruptcy Court, S.D.N.Y.	Bingham McCutchen LLP Thomas Lotterman, Esq.	Probabilistic Modeling & Discounting Issues, CERCLA Cost Allocation, Natural Resource Damages	Deposition

Note: Affidavits and similar materials not listed.

03/01/2012

Attachment 2

AN ALLOCATION FRAMEWORK

WITH RESPECT TO THE ALLOCATION OF RESPONSE COSTS AT

THE EXXONMOBIL BAYTOWN COMPLEX AND THE BATON ROUGE COMPLEX SITES

REBUTTAL REPORT

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December 17, 2012

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INTRODUCTION

My background and qualifications are provided in my initial report in this case.¹

As an initial matter, having reviewed the government expert rebuttal reports, I see no basis to modify any of my analyses or conclusions, and I take issue with their criticisms. I will address some of these issues here, and intend to explain and defend my analyses and conclusions at trial, as needed.

* * * * *

Mr. Low's analysis is riddled with errors. At its most basic, it results in an allocation that, as among the two parties, would not add up to 100% allocation of the costs. This basic error sets the stage; almost every subsequent calculation provided in Mr. Low's report relies on an initial set of calculations that are mis-specified, leaving every subsequent calculation also in error. Yet, setting this basic deficiency aside, a further review of his analysis brings out literally scores of additional computational miscalculations – from incorrectly measuring the timeframe he purports to apply, to double-counting crude oil data, to using data meant for one cost segment, mistakenly for another. The fact that calculations do not add to 100% – where they obviously should – is an obvious example. But upon attempting to “replicate” his analysis, dozens of computational errors have been identified.

As part of my rebuttal, I will point out a number of errors and deficiencies in Mr. Low's analysis. The Court will have to determine whether his report, given these errors, merits serious consideration. Yet setting these errors aside, my principal focus is to provide the Court with a comparison of our differing methodologies and demonstrate for the Court the impact of the key areas where we disagree.

OVERVIEW OF MAJOR DIFFERENCES IN METHODOLOGY

At its core, there are 5 major differences between Mr. Low's methodology and that provided in my report:

1. Basis for intra-class allocation (*i.e.*, use of time versus crude oil throughput as modified to reflect waste processing improvements);

¹ I have recently moved, and the address shown on this report cover reflects my new home office address (as I routinely work remotely). My firm's address is in Arlington, VA although I do not maintain a physical office at that location.

2. Fraction of Production Under “Control” or “War Related” (*i.e.*, AvGas and definition of war products versus total production);
3. Basis for inter-class allocation (*i.e.*, degree of involvement or control);
4. Impact of Government-directed delays in waste processing improvements (*i.e.*, impact in the “gap” years); and
5. Scope of “contract” coverage.

The first 3 of these issues are general issues of methodology – and apply across the time periods. The last 2 issues are specific issues that flow from the more general analysis. Each of these issues is addressed here in my rebuttal report.

In my view, the Court should not attempt to somehow “work” from Mr. Low’s analysis and make needed adjustments because the issues identified above affect, independently, the different dimensions of the allocation analysis. That is, his assignment of what I term the “intra-class” allocation (*i.e.*, how much to assign to each year (irrespective of parties who are then asked to share that)) is so flawed that it cannot be simply “adjusted” without a complete remodeling of his analysis. Independent of this, his analyses of what I term “inter-class” allocation issues (*i.e.*, who bears what share within a period) are independently flawed. Likewise, his analysis attempting to parse production rather than view involvement and control where it actually applies – at the refinery level itself – is flawed. His analysis should simply be rejected.

To illustrate and evaluate these issues I have developed **Table 1** which is a simplified illustration comparing Mr. Low’s analysis with mine, for costs related to the Baytown Refinery. In this table I allocate a total of \$1 million in cost,² and for purposes of this I spread these costs over the 1921-1985 period (consistent with the methodology in my report).³ Note that of the five issues I identified above, all are illustrated here except for the “gap” issue since it does not apply to the 1942 year. However, I address it elsewhere in this rebuttal report.

² The selection of \$1 Million is simply to illustrate the impact of the different allocation issues. Selection of a different value would not have any impact on the percentage differences calculated.

³ I recognize that this illustration simplifies some of the remaining differences in our respective approaches. For example, we differ on the timeframe related to allocation. But in my view this illustration captures the major issues and the remaining differences would have only a minor impact on the numbers and would not modify my general conclusions. The general structure of the illustration is as presented in my report, and this example is designed to show how major issues in Mr. Low’s analysis account for the differences in our respective results.

TABLE 1

**Illustrating the Differences in Allocation Method:
Examining the Allocation of \$1 Million in Cost to Baytown and Estimating Cost Allocated to the 1942 Year**

Low Product Breakdown	Low Product Breakdown Share	Distribution of 1942 Cost to Product Breakdown	Degree of Involvement	Allocated Cost	Impact of Contract	Total Allocated Cost (With Contract)
1. Initial Low Position						
AvGas	7.0%	\$ 1,628	50%	\$ 814	\$ 814	\$ 1,628
Other War Products	25.0%	\$ 5,814	40%	\$ 2,326		\$ 2,326
Residual (Non-War Products)	68.0%	\$ 15,814	0%	\$ -		\$ -
	100.0%	\$ 23,256	14%	\$ 3,140	\$ 814	\$ 3,953
2. Move to Production from Years-of-Use						
AvGas	7.0%	\$ 2,898	50%	\$ 1,449	\$ 1,449	\$ 2,898
Other War Products	25.0%	\$ 10,349	40%	\$ 4,140		\$ 4,140
Residual (Non-War Products)	68.0%	\$ 28,149	0%	\$ -		\$ -
	100.0%	\$ 41,396	14%	\$ 5,588	\$ 1,449	\$ 7,037
3. Move to Production As AvGas Related or War Production						
AvGas	7.0%	\$ 2,898	50%	\$ 1,449	\$ 1,449	\$ 2,898
Other War Products	93.0%	\$ 38,499	40%	\$ 15,399		\$ 15,399
Residual (Non-War Products)	0.0%	\$ -	0%	\$ -		\$ -
	100.0%	\$ 41,396	41%	\$ 16,848	\$ 1,449	\$ 18,297
4. Move to Refinery-Level Degree of Involvement at White Rate						
AvGas	7.0%	\$ 2,898	60%	\$ 1,739	\$ 1,159	\$ 2,898
Other War Products	93.0%	\$ 38,499	60%	\$ 23,099		\$ 23,099
Residual (Non-War Products)	0.0%	\$ -	0%	\$ -		\$ -
	100.0%	\$ 41,396	60%	\$ 24,838	\$ 1,159	\$ 25,997
5. Move to XOM View of Contract as "AvGas Related"						
AvGas, Other War Products and Production Necessary for War Products	7.0%	\$ 2,898	60%	\$ 1,739	\$ 1,159	\$ 2,898
	93.0%	\$ 38,499	60%	\$ 23,099	\$ 15,399	\$ 38,499
	0.0%	\$ -	0%	\$ -		\$ -
	100.0%	\$ 41,396	60%	\$ 24,838	\$ 16,559	\$ 41,396
White Product Breakdown	White Product Breakdown Share	Distribution of 1942 Cost to Product Breakdown	Inter-Class Allocation to U.S.	Allocated Cost	Impact of Contract	Total Allocated Cost (With Contract)
AvGas, Other War Products and Production Necessary for War Products	100.0%	\$ 41,396	60%	\$ 24,838	\$ 16,559	\$ 41,396

Under Mr. Low's methodology, the 1942 year would be assigned 2% of the costs, so in this example, the 1942 year would be assigned \$23,256.⁴ That \$23,256 would then be distributed to Mr. Low's view of the product breakdown – AvGas (7% of production), Other War Products (25% of production) and Residual (the remaining 68% of presumably Non-War Products for which the U.S. would have no responsibility). Under this, AvGas production would be assigned \$1,628 for 1942, Other War Products would be assigned \$5,814 for 1942, and residual products would be assigned \$15,814.

Then, using Mr. Low's degree of involvement shares (his analog to my inter-class allocation shares), the AvGas cost (1,628) would be assigned a 50% share of U.S. involvement – for an allocation of \$814. The remaining \$814 related to AvGas would be the subject of the contract issue. For the \$5,814 related to Other War Products, his U.S. involvement share would be 40%, resulting in another \$2,326 assigned to the U.S. (and nothing would potentially relate to the contract issue.) For the remaining \$15,814 the U.S. share would be zero. This would leave an initial allocation to the U.S. of \$3,140, representing 14% of the 1942 costs. This result is shown as "1. Initial Low Position" on [Table 1](#).

By simply adjusting Mr. Low's "years-of-use" distribution to a production-related distribution, the cost assignable to the 1942 year rises from \$23,256 to \$41,396 – an increase of 78% from his baseline.⁵ Keeping all of Mr. Low's other assumptions the same, this raises his allocation to \$5,588 and increases the potential assignment related to the contract issue from \$814 to \$1,449 (also a 78% increase). This result is shown as "2. Move to Production from Years-of-Use" on [Table 1](#).

Next, building on the modification above, a further adjustment to recognize that all 1942 production is at least "war related" (if not in fact AvGas related) has the effect of shifting the "residual" fraction, for which Mr. Low assigns no U.S. responsibility, into a category where the U.S. does bear some responsibility. If that residual is shifted to "Other War Products" it has the effect of increasing the allocation to the U.S. from \$5,588 to \$16,848 (an increase of 437% from Mr. Low's original estimate). At this point there is no incremental impact to the contract calculations. This result is shown as "3. Move to Production as AvGas Related or War Production" on [Table 1](#).

⁴ This calculation is based on an equal share assignment to the years 1928 through 1955, and a reduced 50% weighting to the years 1956 through 1985.

⁵ See [White Report](#), Appendix D-1 for calculation of the percentage share assigned to 1942.

Next, if building on the adjustments above, I modify Mr. Low's "degree of involvement" to reflect my view of the inter-class allocation (a move from his 41% share in "3." above to 60%), his allocation rises from \$16,848 to \$24,838 (an increase of 691% from Mr. Low's original estimate). This also has the impact of reducing the value of the contract at this stage, because the share directly assignable to the U.S. rises, leaving less to XOM for the AvGas element Mr. Low evaluates. This result is shown as "4. Move to Refinery-Level Degree of Involvement at White Rate" on [Table 1](#).

Finally, if building on the adjustments above, I modify Mr. Low's view of the contract to comport with XOM's view that it covers "AvGas-related" activity – such that it now covers the other products – this has the impact of "no change" to the direct allocation, but an increase of \$15,399 to the contract issue estimate, raising it from \$1,159 to \$16,399. This result is shown as "5. Move to XOM View of Contract as AvGas Related" on [Table 1](#).

The impact of these four adjustments (and only three of them to the direct allocation) is to increase the direct allocation by 691%, and to increase the contract-included allocation by 947% from Mr. Low's initial estimate. And at this point, it now reflects my allocation methodology (as shown at the bottom of [Table 1](#)).

The differences in allocation methodology differ depending on the time period being evaluated, but this simplified comparison illustrates the key issues that the Court will have to consider when comparing the two methodologies.

PRODUCTION AND EFFICIENCIES VERSUS YEARS-OF-USE

What I refer to as the intra-class allocation – namely assigning costs to the different years and time periods – is the first issue identified in [Table 1](#). Basically this is the debate as to whether to apply Mr. Low's years-of-use distribution or my production-weighted distribution.⁶

Having read the rebuttal reports of the government's experts, it is clear that they have grasped an extreme position and they are desperately working to defend what is ultimately unsupportable: namely, that the amount of waste production at the XOM facilities is constant over time. That assumption is the

⁶ See also discussion in [Gagnon Rebuttal Report](#), Section 3.0 Rebuttal Opinion 1. See also discussion in [Johnson Rebuttal Report](#), Rebuttal Opinion 4. See also [Beath Rebuttal Report](#), Section 4, Opinion 1.

only way in which the U.S. can assert a simplistic “years-of-use” framework for allocation. The facts related to operations of these sites, however, simply render that position untenable.

The basic concept of a “years-of-use” methodology has its roots in EPA’s decades-old NBAR guidance: “The relative allocation among successive owners and/or operators may be determined, where all other circumstances are equal, by the relative length of time each owned and/or operated the site.”⁷ As I noted now 15 years ago, this is nothing more than simplistic attempt at a volumetric allocation.⁸ It rests on the assumption that releases and activities related to production – where “all else is equal” – is a proxy for waste contribution where such direct measure of waste contribution is not available. All else is seldom equal, and what the government experts have seemingly ignored is the fact that all else is not equal. If in fact all else is not equal – and in particular, factors that would relate to waste production – then appropriate adjustments must be made to effectively “correct” for this such that such a corrected measure can be used to differentiate time periods or operations.

Unlike many Superfund allocation cases, this is not one involving different parties generating waste and depositing it at a third-party site (like a landfill or a drum dump, for example). Nor is this a case where different parties, operating a facility at different times, undertake fundamentally different operations and thereby contribute different contaminants. This is a refinery operation, and setting aside the plancors, or the BOW, what is at issue here is how and when the U.S. government controlled these operations.

To be fair, the government’s allocation expert, Mr. Low, has acknowledged that the general method I am employing is the correct method; his criticism is on the data I use to actually make the calculations:

In the absence of any changes in materials and waste handling processes at the refinery that directly or indirectly impact the response costs being claimed, the increases in production would provide an equitable basis for allocating the response cost impact during different periods because one could reliably use production as a surrogate for waste production. And, if data were available to reliably and credibly account for changes in the refinery that impacted the contamination actually being remediated and corresponding response costs, reliance on crude throughput, as adjusted to reflect these impacts, would also be an appropriate means to account for response cost impacts during different periods. However, in my opinion, as

⁷ U.S. Environmental Protection Agency, “Interim Guidelines for Preparing Nonbinding Preliminary Allocations of Responsibility,” 52 Fed. Reg. 19919 (May 28, 1987).

⁸ “Applying Cost Causation Principles in Superfund Allocation Cases,” with John C. Butler III, Environmental Law Reporter, Vol. 28, No. 2, (February 1998) at 10081.

discussed further below, the available data do not provide a reliable basis for making the types of waste-reduction assumptions relied on by Mr. White, and his approach, which seizes on selected documents on refinery modifications to assume major reductions in response cost impacts per barrel of crude throughput after 1946, is not reliable or credible.⁹[emphasis added]

As such, the first question is how to distinguish one period from another. I employ a production-weighted allocation, one that takes into account both duration and production (including relevant efficiencies over time). The government's experts struggle to defend a simple years-of-use alternative (effectively removing production and its efficiencies from the analysis). Their solution is to simply punt on the issue and assume nothing ever changes.

This leaves the Court with a fairly straightforward question: is all else equal? That is, does production differ to any significant degree across time? And independent of that, does production efficiency as it relates to waste generation differ significantly over time? These are two relevant, but independent issues.

Even a years-of-use method starts with the (at least implicit) assumption that waste is related to duration of a facility operation. The issue of production is whether the amount of production at such a facility varies to any significant degree. For example, if waste relates to operation, it likely makes no sense to treat years the same where production in one year is double that of another. So the first question is, does production in fact differ markedly over time? And the answer to that is unequivocally yes, as the data document.

Notwithstanding Mr. Low's assumption to the contrary, it is a fact that the years are not "equal" and this can clearly be seen by comparing crude oil at the refinery over time (where crude oil is a proxy for size of the facility and its product generation).¹⁰ Both Mr. Low and I provide data on crude oil,¹¹ and a cursory review of these data clearly demonstrate that the plant and its capacity differs significantly across time. My crude oil capacity data are provided in **Table 2** for Baytown. Mr. Low's methodology assumes this difference away; he ignores the fact that the plant changes over time.

⁹ See Low Rebuttal Report, page 7.

¹⁰ The crude oil data provided in Table 2 are for Baytown and are originally provided in my earlier report. See White Report, **Appendix C-2**. Corresponding data for Baton Rouge are provided in **Appendix K-2**.

¹¹ Mr. Low's data generally match mine. See Low Report, page 12 (discussion) and **Attachment 4** (data).

TABLE 2**CRUDE OIL CAPACITY AT BAYTOWN BY YEAR**

Year	Crude Capacity	Year	Crude Capacity	Year	Crude Capacity
1921	3,650,000	1943	63,875,000	1965	100,375,000
1922	7,300,000	1944	69,350,000	1966	98,002,500
1923	10,950,000	1945	65,700,000	1967	98,185,000
1924	14,600,000	1946	65,700,000	1968	124,100,000
1925	18,250,000	1947	69,350,000	1969	125,925,000
1926	22,812,500	1948	73,000,000	1970	125,925,000
1927	27,375,000	1949	82,125,000	1971	125,925,000
1928	31,937,500	1950	94,900,000	1972	125,925,000
1929	36,500,000	1951	114,975,000	1973	127,750,000
1930	45,625,000	1952	104,390,000	1974	146,000,000
1931	45,625,000	1953	106,580,000	1975	146,000,000
1932	45,625,000	1954	101,105,000	1976	142,350,000
1933	29,200,000	1955	111,325,000	1977	142,350,000
1934	32,850,000	1956	114,281,500	1978	233,600,000
1935	41,975,000	1957	102,930,000	1979	233,600,000
1936	41,975,000	1958	103,276,750	1980	233,600,000
1937	43,800,000	1959	103,623,500	1981	233,600,000
1938	54,750,000	1960	106,689,500	1982	233,600,000
1939	50,005,000	1961	106,689,500	1983	180,310,000
1940	51,100,000	1962	110,230,000	1984	180,310,000
1941	54,750,000	1963	110,230,000	1985	180,310,000
1942	67,525,000	1964	110,230,000		
Average (1921-55)					54,301,571
Average (1956-85)					143,530,775
Average (1921-85)					95,484,281

The data in **Table 2** do not include the modifications related to waste processing efficiency, but as this table shows, the size of the refinery – as measured by crude oil throughput – changes dramatically over time. An analysis that ignores this fact or assumes it away is simply unsupportable.

Mr. Low begins his Baytown analysis in 1928, notwithstanding the fact that Baytown began operating in 1921. In **Figure 1** I have plotted the percentage change in production (measured by crude oil capacity) for the Baytown facility, across time.¹² I have also plotted a straight line, at 100%, which effectively represents the position of the government experts (as shown in Mr. Low's analysis). The government experts start their analysis in 1928, so for purposes of presentation I have set 1928 as the "pivot point" or base year where relative measurement is taken.

¹² Experts on both sides acknowledge the capacity data employed in my analysis.

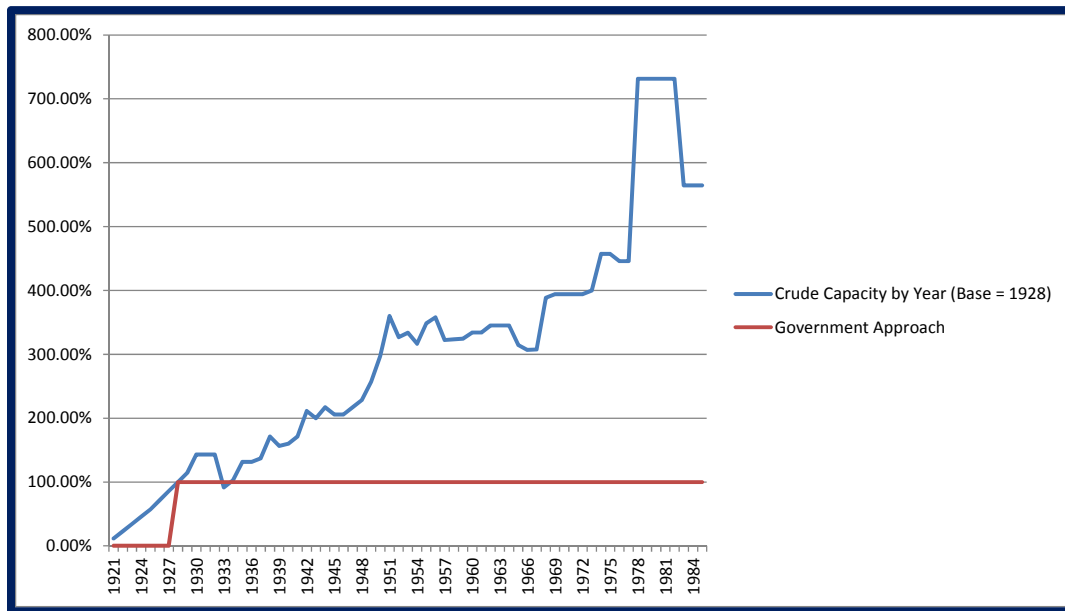
Dr. Kittrell has raised a criticism to the fact that I am using crude oil capacity as opposed to actual production. (See Kittrell Rebuttal Report, footnote 3):

Although some argue that crude oil processing rate may be proportional to waste production, Exxon's experts choose to use crude oil processing capacity. Crude oil processing capacity represents the maximum possible processing rate of crude oil in a refinery. For various reasons, the actual processing rate is often lower than the crude oil capacity, due to market conditions or competition that prevents a refinery from operating at full capacity. Also, the introduction of a new product, like special high octane gasoline, may alter the refinery operation from its original design, causing crude oil processing rate to be lower than the rated capacity of the refinery. Planned maintenance can be deferred, allowing actual crude processing rates to exceed the rated refinery capacity.

The issue here isn't a preference for capacity as opposed to actual data, but rather the fact that actual data are limited (and at Baton Rouge, almost non-existent) whereas capacity data are available.

Were I to make some gross-level adjustment that incorporated actual data and recalibrated other years the impact would be negligible. I chose specifically not to modify my analysis for this issue because of the general lack of data. Ultimately, the analysis is guided by the data available.

Figure 1
Relative Crude Oil Capacity at Baytown Over Time (Base Year 1928)



The blue line (“Crude Capacity By Year (Base = 1928)”) plots the data from Table 2, as a percentage of the 1928 production. So for example, the crude capacity in 1925 (18,250,000 bbls) is 57.1% of the 1928 capacity (31,937,500 bbls) while the capacity in 1942 (67,525,000 bbls) is 211.4% of the 1928 value, or an increase of 111.4% over the 1928 baseline.

By comparison, the red line (“Government Approach”) treats every year the same – a simple years-of-use approach where the size of the plant, and the amount of product it produces, has no relevant relationship to waste production.

To believe the government experts’ positions, you have to believe that this plant looks the same on a year-by-year basis with respect to the types of factors that would influence waste generation (and lead to costs now being sought). What is shown above has nothing to do with “production efficiency;” rather, it’s a very simple question, does this facility look the same, in terms of the amount of production, on a year-by-year basis. The answer is obviously no. In fact, as compared to 1928, by the World War II period production has doubled. By Korea, it tripled. At times, production is has risen more than 700% as compared to 1928 (an increase of more than 600%).

This fact, alone, negates the arguments put forward by the government's experts. As long as production has a relationship to waste generation all else is not equal. So you have to "correct" for this, by examining – at the very least – production. My analysis does that; Mr. Low's approach does not.¹³

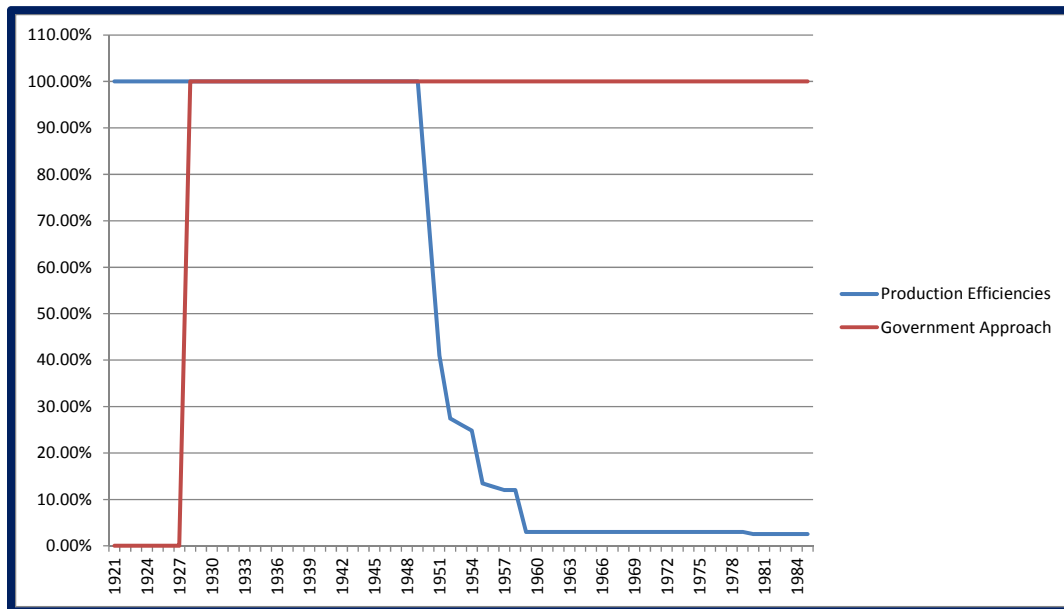
Independent, but equally valid, is the question of production efficiency.¹⁴ That question simplifies to this: on a "per-barrel" basis, does production differ at it relates to factors that relate to waste generation. Here again, government experts have refused to effectively address this issue. While they criticize my use (and related analyses from other XOM experts) of such factors, they cannot refute the fact that significant waste production efficiencies are occurring over time. Here again, the facts are clear: in the early years there are few if any efficiencies in place, yet over time the plants spend significant time and effort to put these efficiencies in place. Moreover, the argument put forward by the government experts necessarily implies that the waste from a barrel of crude in the 1920s is identical to the waste from a barrel of crude decades later, notwithstanding the development of a rigorous regulatory framework designed specifically to prevent this outcome. The question isn't whether, on a per-barrel basis, production of waste is more efficient over time – it obviously has to be given the regulatory structure – rather the question is the "when" and "to what degree" that efficiency has occurred. Here again, government experts simply ignore this issue and assume it is constant over time.

As shown in **Figure 2**, the government experts assume that there are no efficiencies, and by comparison, my analysis utilizes both the historical data and the fact that later regulations necessitate significant efficiencies over time (here again, the base year is 1928).

¹³ Mr. Low does examine the production data (crude oil capacity) as an alternative analysis but it is not the allocation he proposes except for a few selected cost elements.

¹⁴ See also discussion in Gagnon Rebuttal Report, Section 3.0 Rebuttal Opinion 1. See also Johnson Report, Opinion 3, and Johnson Rebuttal Report, Rebuttal Opinion 4.

Figure 2
Relative Waste Production Efficiency at Baytown Over Time (Base Year 1928)



The blue line (“Production Efficiencies”) shows the impact, on a per-barrel basis, of programs undertaken at Baytown over time to reduce the amount of pollution related to crude oil production. As **Figure 2** shows, the impact is significant and results in a dramatic decrease in pollution on a per-barrel basis.

By comparison, the red line (“Government Approach”) reflects Mr. Low’s assumption that on a per-year basis there is no impact from production efficiencies – again in keeping with his years-of-use approach.

The early portion of the figure above reflects the period when the plant was smaller, and there was less emphasis on production efficiency. It further reflects the fact that during the World War II years the plant was prevented from taking steps to address the issue. The dramatic decline beginning in the 1950s reflects a series of documented actions taken at the refinery to address the issue.¹⁵

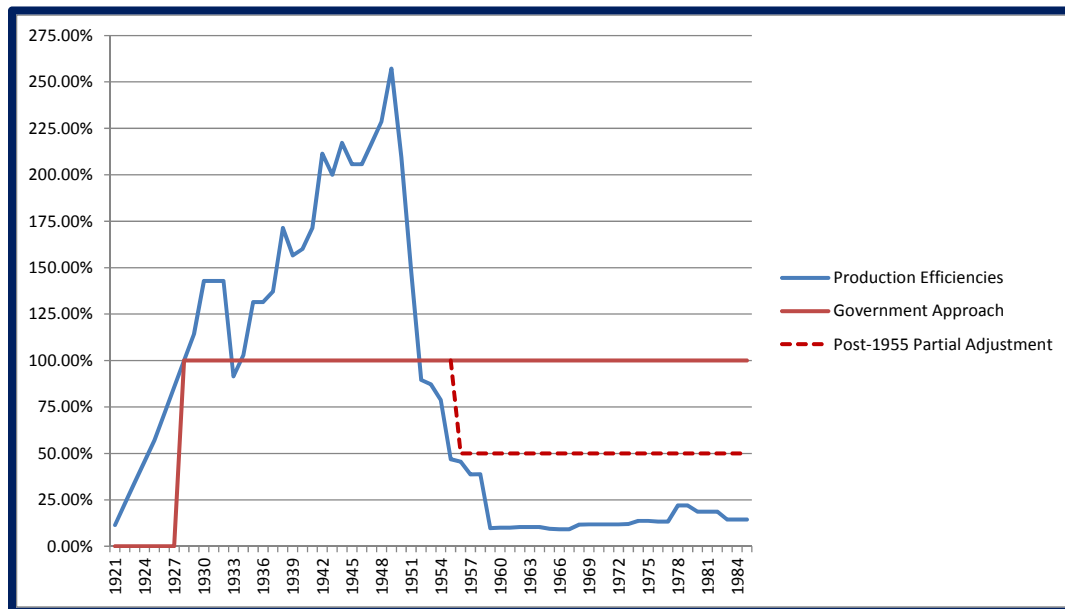
While the experts can quibble with the trajectory (*i.e.*, the timing and shape) of the line shown in **Figure 2**, there simply cannot be any dispute that substantial measured progress occurred. Nor can there be any dispute that by the time a regulatory framework was in place, the waste efficiency (again,

¹⁵ See White Report, at pp. 44-54. See also Gravel Report, Opinion 3 and Opinion 8. See also Johnson Report, Opinion 5. See also Johnson Rebuttal Report, Section 2, Rebuttal Opinion 4 and “Additional Rebuttal Opinions”.

on a per-barrel basis) had to be dramatically different.¹⁶ And here again, this issue, on its own, would necessitate a wholesale rejection of the simple “years-of-use” measure that government experts propose.

Either of the above issues (amount of production, efficiency on a per-barrel basis) if found to differ on a year-by-year basis, would necessitate a rejection of a simple “years-of-use” approach. Taken together, my analysis takes the form shown in **Figure 3**.

Figure 3
Relative Waste Production & Efficiency at Baytown Over Time (Base Year 1928)
As Compared to “Years-of-Use”



I also show, in **Figure 3**, the impact of an adjustment made by Mr. Low for a portion of his analysis, one that reduces the “weight” applied to a given year (post 1955) by 50%.^{17,18} It is clear from the figure

¹⁶ There is no dispute that the waste efficiency activities occurred after the World War II period. And there should be no practical dispute over whether a plant, in complying with environmental regulations (*e.g.*, its NPDES permit) has to be significantly better by that point in time. Thus the “debate” is over the shape of the curve in Figure 2, and less so over its starting and ending position.

Interestingly, a delay in the efficiency would likely raise the U.S. allocation since it would likely raise the allocation to the Korea period.

¹⁷ Oddly, in describing his 50% post-1955 reduction, Mr. Low concedes that major improvements have occurred.

In my opinion, the record does not provide a basis to conclude that any particular operational improvements have impacted the actual remediation and corresponding response costs incurred for this unit in a way that can be quantified. But, as noted by Exxon’s experts, the record does show that

above that the government's approach is at odds with the actual and the historical data. There can be no justification for allocating based on the government's proposal as illustrated in **Figure 3**.

Since the crude oil capacity data are not in dispute (we both cite the same data), and since Mr. Low concedes that the approach I propose "would also be an appropriate means to account for response cost impacts during different periods" if the production efficiencies could be determined,¹⁹ the next question to examine is what these production efficiencies are that I am employing and address the critiques raised by the government experts.

It was the contemporaneous view that the various improvements – whose focus was on reducing effluent contamination – ultimately resulted in a 98.5% improvement in effluent contamination levels by the mid-1960s.²⁰ What I have tried to do in my analysis is find the representative changes that contribute to that improvement and measure their impact, and place them time-wise within the cleanup program. It is clear when this program "started" and we know the measured improvement, and we know by when that improvement had to occur.

In **Figure 4** I highlight the "curve" that is created at Baytown as a consequence of the production efficiencies I have modeled, and compare that to an alternative or modified curve, whose key parameters are same start and end date, and same 97% overall production efficiency (*i.e.*, reduction of pollution) at project completion.

Exxon did take steps to reduce the amount of emulsions processed through the refinery waste stream. While the impact of this cannot be quantified, in my opinion, it is reasonable to infer that reduced emulsions had an impact on the buildup of sludge in the outfall canals. Accordingly, I have incorporated an adjustment multiplier of 50% on years of operation after 1955 as a reasonable way to reflect this improvement, assuming an operating period of 1928-1995. This is a qualitative adjustment multiplier. I will continue to evaluate this issue to determine if a more precise quantification can be recommended. (Low Report, page 17)

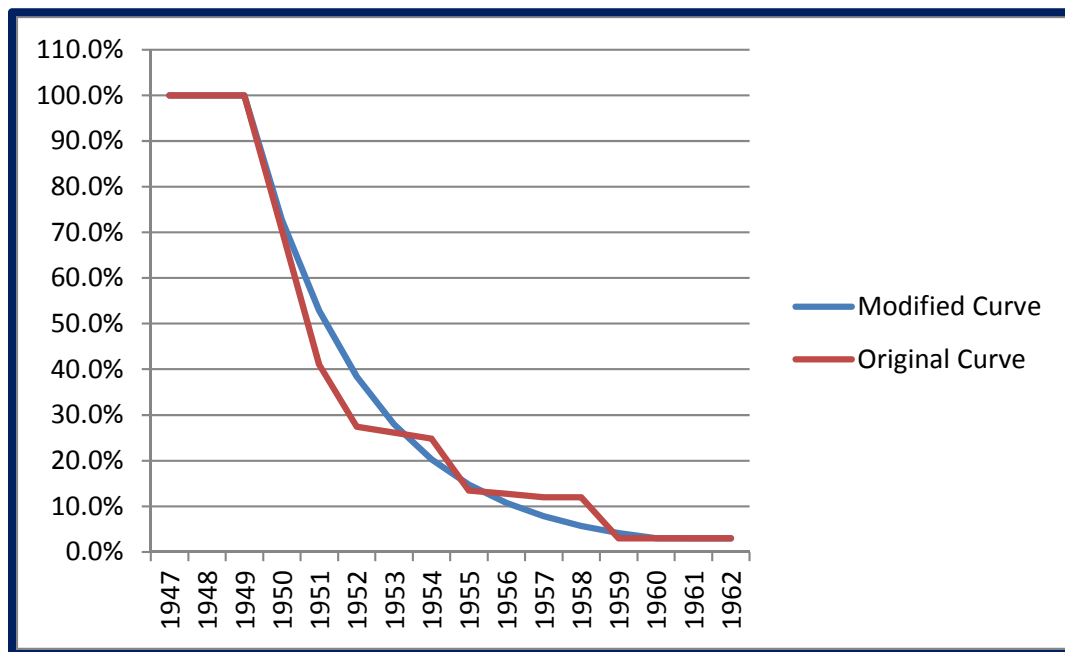
Basically, Mr. Low acknowledges that significant steps were taken, but he questions the data I used to develop the adjustment. He concedes that an adjustment should be made, but concludes that there isn't sufficient data to estimate that impact – so he just cuts it in half.

¹⁸ The government position pre-1948 is driven entirely by a refusal to adopt the crude oil capacity data (since no production efficiencies occur in those years). And what this diagram shows is the bias in their resulting analysis: they have chosen an allocation method that significantly and by design reduces the weighting assigned to the World War II years.

¹⁹ Low Rebuttal Report, page 7.

²⁰ See J.R. Barsalou. September 23, 1964. Air and Water Pollution Effect on Plant Field Installations, Baytown Refinery. BAYC-00000800 - BAYC-00000805; at page BAYC-00000800. See also discussion in Johnson Rebuttal Report, Section 2, and "Additional Rebuttal Opinions" 4.

Figure 4
Production Efficiency Curve for Baytown – As Modeled vs. Smoothed Curve



The original curve – the curve I use in my analysis – has a series of kink points or pivots where I set improvement targets to specific points in time. As a consequence, it is not a “smooth” curve. By comparison, I have modeled such a smooth curve. Although they differ, the impact is not material.

Dr. Kittrell asserts that the two factors I reference are somehow a “double counting” of the impact and that the fact that my calculations are consistent with the contemporaneous measures of overall efficiency are merely coincidence.^{21,22}

I disagree, but as an initial matter, I would note that if these are somehow a double counting, is it not the case that *at least* one of these becomes a valid factor representing waste reduction? That is, doesn’t this become the elusive factor that Mr. Low fails to find?²³

²¹ See Kittrell Rebuttal Report, page 8. See also *Id.* at page 42.

²² Use of these factors is also addressed in Johnson Rebuttal Report. See *e.g.*, Additional Rebuttal Opinions 4, 5 and 6.

²³ The government experts argue over the factors I have utilized, but cannot dispute that significant waste improvements were implemented. Their offered alternative is to reject my adjustments but they offer none in the alternative. Effectively, they argue that no improvements were made – at least none that impact waste

As to the double-counting, these factors are measuring different things. The 70% production efficiency reflects a reduction at the source – at the refinery itself. This is the result of a series of steps undertaken at the plant aimed at source control significantly reducing the amount of oily sludge generated.²⁴ The 90% factor measures something very different, namely, a reduction in oil (and thereby oily sludge) at Separator 3M due to the installation, over time, of 3 pre-separators.^{25,26}

Frankly, the issue is less whether the factors I apply are the sole cause of the measured significant decrease in pollution actually experienced at the plant. Rather, the key question is whether the multi-year multi-million dollar effort did in fact achieve a significant decrease in pollution.

The relevant questions here are actually straightforward:

1. Did Baytown undertake significant efforts to reduce effluent contamination after World War 2? The answer is yes.
2. Did these efforts significantly reduce sludge as a result of source control? The answer is yes.
3. Irrespective of source control, did Baytown install a system of pre-separators that significantly captured oil and sludge (cost for which is not being claimed) thereby reducing contaminant levels in the historical separator system (which is a claimed component due to its historical use)? The answer is yes.
4. Was it the contemporaneous view that waste effluent was significantly reduced – on the order of 98.5% – as a consequence of these and other actions taken by the plant? The answer is yes.
5. Is there any evidence that the process improvements did not in fact substantially reduce pollution? The answer is no.

generation as an issue in this allocation. Their calculation assumes that waste production, per barrel of crude, remains unchanged over time (See Figure 2). This conclusion is unsupportable and directly contradicted by the contemporaneous documents.

²⁴ See “An Historical Overview of Solid Waste Management in the Petroleum Industry,” (API; Oct. 1990) at 11-15, 22-25.

²⁵ It should be noted that XOM is not claiming costs related to the pre-separators or the associated sludge disposal. It should also be noted that there is no identified groundwater contamination in this area.

²⁶ Prior to installation of the pre-separators most of the waste at the plant was generated in Separator 10 and disposed of in Separator 3M (and the old Separator 12). Once the pre-separators were installed 90% was captured in the pre-separators, significantly reducing the sludge in the other components. In effect, these non-claimed components began addressing a significant portion of the waste at the historical unit, thereby reducing the contamination faced by that historical unit. The plant may not be generating less waste as a measure from this factor, but that waste is being captured as a non-claimed cost, and the effluent, after this step in treatment, is significantly less contaminated.

This leaves one last question: Aren't these the types of factors one would consider when recalibrating production quantities to develop a proxy for contamination on a year-by-year basis? Yes, and I did; Mr. Low did not. Ultimately, the Court will have to determine whether the wide-ranging program focused on waste effluent reduction took place, had a measureable impact, and is at least approximated by the contemporaneous data. If the Court concludes that these activities did occur, were successful, and were measured contemporaneously, my allocation takes that into account.

WARTIME PRODUCTS

The next major difference in our respective approaches is in what wartime product to include in the allocation. Mr. Low includes a 7% share for AvGas (based on 14% AvGas production, reduced by half for alleged off-site component utilization),^{27,28} plus an additional 25% of other wartime products.²⁹ The "basis" for this breakdown is from Dr. Brigham's report.³⁰ Yet, this analysis fails to account for the fact that the entire plant was dedicated to wartime production. In fact, as contemporaneous reports note:

On the basis of the current refinery input of 143,780 barrels daily of crude and 6,860 barrels daily of other raw materials, the output of war products is 31.1%. At first glance it might appear that this represents less than one-third conversion to the manufacture of war products but this is hardly true, since, in order that these war products be made, it is unavoidable that other products such as motor gasoline, kerosene, heating oil, and residual fuel oil, be made as byproducts. Although these are not classified as war products they are nevertheless playing an important part in the nation's war economy. The current production of war products represents essentially 100% conversion since all of the crudes and other raw materials taken into the refinery are run specifically for the production of one or more war products. Should any of the crudes be reduced in quantity, the output of war products would suffer. Specific records of all other refineries are not available but, based on such information as is available, it appears that the Humble's Baytown refinery is making more war products than any other refinery in this

²⁷ See Low Report, page 26. The basis for this "adjustment" is provided in Dr. Kittrell's report and will be addressed by other experts. However, I must note that what Mr. Low has done by making this adjustment results in an allocation of less than 100% of the costs among responding parties – a fatal flaw in any CERCLA allocation. Moreover, Mr. Low fails to appreciate that what Dr. Kittrell points out does not somehow render crude oil an irrelevant surrogate.

²⁸ See discussion in Johnson Rebuttal Report, Section 2, Rebuttal Opinion 1. Mr. Johnson directly addresses the Kittrell contention that a 50% reduction is appropriate to AvGas as part of his broader discussion that these plants were fully dedicated to the production of AvGas and related war products. See also discussion in Beath Rebuttal Report, Section 4, Rebuttal Opinion 2. Mr. Beath directly rebuts Dr. Kittrell's contention that 50% of the AvGas was made from purchased components.

²⁹ See Low Report, page 27. Note that he references a 20% share for other war products, but in his calculations, he employs 25% (See Attachment 3).

³⁰ See Low Report, footnote 58. See however, Gravel Rebuttal Report, Section 4, Rebuttal Opinion 5.

country either in terms of the percentage of these products on the refinery input or in terms of total volume.

Only approximately 15% of the output of war products is sold directly to the Army and Navy but under the terms of a Product Sales Contract between Humble and Standard Oil Company of New Jersey all products not sold directly by Humble in the territory in which it markets are sold to Standard Oil Company of New Jersey. It is understood that practically all of the war products sold to Standard Oil Company of New Jersey under the Product Sales Contract eventually are delivered to the Army, Navy, aircraft engine builders or contractors on jobs directly for the Army or Navy. [emphasis added]³¹

Mr. Low's analysis at Baton Rouge suffers from the same deficiency. Here, again Mr. Low attempts to segregate out AvGas production and selected other products (he uses 9.5% for AvGas, prior to again reducing it by 50% to arrive at 4.8% net, and he uses 25% for other wartime products).³² Yet contemporaneous documents paint a very different picture, namely one where AvGas is 26.2% of total production alone, and all – 100% – of products are war products.³³

This issue, however, is more than simply a debate over the data – whether to use or alternatively ignore the contemporaneous evidence – it is also a basic yet fundamental question of process. Documents indicate, and other Exxon experts will testify, that one cannot selectively charge the crude oil to the stills such that it only produces a single product. That is, one cannot simply dedicate a barrel of crude to AvGas, or determine that the entire barrel produce gasoline or any other single product. Crude oil produces a range of products and one cannot simply direct that a barrel be charged to produce the

³¹ In citing this document Mr. Low leaves out key comments made in the document that directly contradict the position he takes in his analysis.

See Production of War Products at Humble Oil and Refining Company's Baytown Refinery. February 25, 1943. BAYHIS-00024502 - BAYHIS-00024514; at pp. BAYHIS-00024502-BAYHIS-00024503.

It should be noted that a breakdown of "war products" is provided in the above-referenced document, and the share there, at 31.1%, is less than what Mr. Low ultimately employs. Yet the documentation describing this number makes clear that the plant and its products should be viewed as 100% conversion – this is the issue that neither Dr. Brigham or Mr. Low seem to recognize.

³² See Low Report, Attachment 4. See discussion at *Id.*, pp. 37-38. Note that text refers to 16% for other war products, but his calculations employ 25% as the share.

³³ See Major War Products. Baton Rouge, Louisiana. Prepared for War Agencies Joint Inspection Trip. May 30-31, 1943. BRC-00011607 - BRC-00011640; at page BRC-00011620. The referenced product distribution table shows 100% of the products produced are war-related.

subset needed, without “avoiding” that the remaining products be likewise produced (or discarded as waste).³⁴

Other experts for XOM will address Dr. Kittrell’s assertion that there should be a 50% adjustment to AvGas due to its substantial manufacture from product produced off site and shipped in. My understanding is that, overall, the plants actually were net exporters of such materials.³⁵ Further, how Mr. Low has employed this adjustment, thus creating a gap in his allocation (with shares that add to less than 100%) simply leads to spurious results.

These plants were producing product for the war effort. Their supply of raw materials was under the control of the U.S. government. It was the position of the U.S. that these plants maximize production utilizing as little raw product as possible to meet government needs. Other XOM experts will address this in much greater detail, but there is no justification for counting only a subset of product when in fact the entire range of products was controlled by the government and a range of product was the natural result of meeting the governments’ needs.

That there is a relationship between the products needed by the U.S. and the array of other products necessarily produced as byproduct is a fact; that all of these products were wartime products, or at least the result of fully dedicating these refineries to wartime production, is also a fact.³⁶ By failing to account for this, once again Mr. Low miscalculates the allocation, and again biases his results low. By accounting for this issue (in tandem with the intra-class issue previously raised), Mr. Low’s allocation would move by more than 500% (up 524% from baseline).

Another argument sponsored by the government experts is that the U.S. should only have any responsibility for the AvGas fraction of plant production, plus, at times, some lesser amount of responsibility what are termed “Other War Products.” This overly narrow view is misguided.

³⁴ See *e.g.*, Johnson Rebuttal Report, Rebuttal Opinions 1 and 2. This is also addressed at length in Mr. Gravel’s reports.

³⁵ This issue is addressed in both the Johnson Rebuttal Report and the Beath Rebuttal Report.

³⁶ I recognize that these plants were generating some public sector sales. My point is the plants were reconfigured specifically for wartime production, that the inputs used in the plants were specifically optimized for this wartime production, and that a wide range of products were in fact made for the government (well beyond Avgas). Finally, one cannot charge crude to the stills in such a way to only make avgas or a limited range of products and the government knew this. Effectively, these other products were the byproducts of the government requirements, and but-for their sale, would have been additional waste product.

At its core, this argument rests on the implicit assumptions that these products can somehow be magically parsed or segregated from the broader array of crude-derivative products, and that one can somehow exert control or involvement over this narrow segment. Neither of these assumptions is valid.

As other XOM experts describe, control or involvement rests at the refinery level – one cannot direct AvGas without simultaneously directing the array of other products that necessarily flow from the charging of crude oil to the stills. Nor is this control limited to AvGas, or even to the narrowly defined other war products to which Mr. Low refers. As the contemporaneous documents clearly indicate, these plants were fully dedicated to making war products, and were specifically reconfigured to maximize those products.^{37,38}

DEGREE OF INVOLVEMENT (INTER-CLASS ALLOCATION)

Mr. Low notes that my inter-class allocation – where I develop a framework for parsing owner from operator cost responsibility – is at least loosely related to his degree of involvement analysis. He then goes on to criticize the results shown in my framework.

To be clear, I noted in my report that what I was showing was an illustration of the framework itself, and employing factors that counsel for XOM would be presenting to the Court. Subsequent to the submission of my report, counsel for the government sought and obtained a stipulation allowing Mr. Low (and me as well) to directly opine on these factors. And now, I'm criticized for not having provided my own opinion on them initially.

So as an initial matter, it is my opinion that owners and operators differ, and that allocations as between them must take into account who is who. A ratio between an owner and an operator can vary significantly on a case-by-case basis, and does not lend itself to quantification. That is, it is an inherently qualitative assessment (which is why it is not generally considered appropriate for expert testimony). Given the stipulation, it is my opinion that the Court should consider a benchmark parsing between owner and operator parties, and in my report I provide a number of references for past decisions. In my

³⁷ See Production of War Products at Humble Oil and Refining Company's Baytown Refinery. February 25, 1943. BAYHIS-00024502 - BAYHIS-00024514; at pp. BAYHIS-00024502-BAYHIS-00024503.

³⁸ See Major War Products. Baton Rouge, Louisiana. Prepared for War Agencies Joint Inspection Trip. May 30-31, 1943. BRC-00011607 - BRC-00011640; at page BRC-00011620. The referenced product distribution table shows 100% of the products produced are war-related.

opinion (and this is an opinion I have expressed previously in expert testimony) that the standard benchmark is 20% for owners, 80% for operators.

Further, given the stipulation, it is my opinion that with respect to concurrent operators, they collectively bear the operator share, which is a standard benchmark of 80%. How they “share” that operator share is driven by the relative level of operational activity or control.³⁹ For example, where operators are equal, they would each bear an equal (40%) share of the operator share. Here, where the U.S. has operational control – for example during World War II – it exerts a unique type of control, one that no private party can exert. Where the U.S. is actively engaged in ongoing operations, and has a level of control commensurate with its ability to seize the facility, its level of control must be viewed as nearly complete.^{40,41} Counsel for XOM has taken the position that they will argue before the Court that the U.S. should be assigned at the very least 75% of the relative operator share (or 60% as 75% x 80%). I would argue that the U.S. share should be *at least* that high given the unique nature of its control.

In a World War II year – 1942 for example – this translates into a 40% share for XOM (20% as owner, 20% for its operator component) and 60% for the U.S., for refinery-related operations. Shares differ for components where ownership differs.

By comparison, Mr. Low assigns a 50% degree of involvement share for AvGas contracts,⁴² plancors and BOW costs during World War II,^{43,44} and lower amounts for other components that he delineates. He

³⁹ Issues related to the control exerted by the U.S. are discussed in great detail in Mr. Gravel’s Rebuttal Report. See, *e.g.*, Rebuttal Opinion 2.

⁴⁰ See *e.g.*, discussion in Gravel Rebuttal Report, Section 2, Rebuttal Opinion 1. Issues of control and involvement are also address in Johnson Rebuttal Report.

⁴¹ The unique threat of seizure by the government was not limited to physical seizure of the plant. It extended to government control over crude and the ability to shut it off for not complying with orders, as well as the potential for criminal prosecution were these orders not followed.

⁴² As Mr. Low notes:

In light of the involvement of Exxon as the owner and operator and economic beneficiary of the refinery and the involvement of the U.S. in efforts to optimize the production of Avgas, in my opinion, it would be reasonable to see the World War II relationship as approximating an equal partnership, arms length arrangement from which both sides benefited. On that basis, in my opinion, it would be reasonable to allocate 50% of the impact of Avgas production to the U.S., producing a U.S. Avgas share for the Refinery for this period of 3.5 % (= 50% x 7%). (See Low Report, page 27)

⁴³ As Mr. Low notes:

In my opinion, a reasonable share for the U.S. for the waste load impact from the Plancors is 50%. This is based on the fact that the U.S. funded construction of and owned the plants, Exxon operated

develops these shares without a consideration of owner status. His 50% assignment basically derives from a “they both benefited” view of allocation. Yet for some of these elements the U.S. is the owner as well as the operator, while at others XOM is the owner. Yet his shares remain unaffected by this fact.

Moreover, Mr. Low assigns different shares related to his breakdown of different products even though those products are produced in the facility at the same time. That is, Mr. Low assigns a 50% share for AvGas, and a 40% share for “Other (War) Products” during World War II. During Korea he assigns a 25% share for AvGas, and no listed share for Korea-era other war products. Focusing on the World War II period, the control that was exerted by the U.S. was over the refinery itself and the full range of products it produced. I see no basis for differentiating the degree of involvement as Mr. Low uses that term, between products.

Mr. Low’s analysis errs in viewing the degree of involvement differently for different products – as if the government somehow exerts more control over one crude-derivative product as compared with another when in fact control exists throughout the process and for all products. Mr. Low’s analysis also errs in not counting all products as (irrespective of “degree”) being controlled by the government, when in fact the plants are fully reconfigured to make war-time products and all products should be included.

The third issue is what Mr. Low refers to as “degree of involvement” and which I refer to as inter-class allocation.⁴⁵ Basically, the issue is this: whatever waste is ultimately assigned to a given timeframe (say, 1942 for example), the next question is how to parse that waste contribution as among responsible parties, what I would typically think of as owner vs. operator issues. Here again, Mr. Low seems to disregard the facts, opting to ignore the distinctions between ownership and operation in lieu of his own views of “everyone benefits”. For example, he assigns a 50% share to the U.S. for AvGas related

and was in a position to derive profits from the plants. Both sides derived benefits from the plants. This is consistent with settlements that the U.S. has reached in other cases with respect to World War II era government-owned, contractor-operated facilities. (See Low Report, page 29)

⁴⁴ As Mr. Low notes:

In my opinion, a reasonable U.S. share for the 1942-1946 period is 50% [for the Ordnance Works]. This share reflects the fact that the U.S. funded construction of and owned the plant while Exxon operated and received benefits from it. As noted above, this share is consistent with settlements that the U.S. has reached in other cases with respect to World War II era government-owned, contractor operated facilities. (See Low Report, page 29)

⁴⁵ See Low Report, footnote 15.

activities (where Exxon owns the facility),⁴⁶ yet applies the same 50% share to the U.S. for the Baytown Ordnance Works and the Plancors (where the U.S. owns the facilities).⁴⁷

Table 3 provides a comparison of the factors Mr. Low and I use.

TABLE 3			
COMPARISON OF INTER-CLASS ALLOCATION FACTORS			
Cost Category	Low Report		White (Both Plants as Applicable)
	Baytown	Baton Rouge	
AvGas Related (During WWII)	50%	50%	60%
Other War Products (During WWII)	40%	40%	60%
AvGas Related (During Korean War)	25%	25%	60%
Other War Products (During Korean War)	0%	0%	60%
Baytown Ordnance Works	50%	NOT APPLICABLE	80%
Government Owned Plancors	50%	50%	80%

In my example, which focuses on the 1942 year for refinery-related production (AvGas and other wartime products) the impact of these differences in inter-class share – even given the other adjustments – has a significant impact. In fact, it results in (collectively) an 800% (819.9% increase) increase from Mr. Low’s original estimate.⁴⁸

These factors do not lend themselves to simple quantification – indeed as uniquely qualitative factors they are frequently not within the scope of expert testimony and analysis.⁴⁹ The Court will have to

⁴⁶ See Low Report, Attachment 3.

⁴⁷ See Low Report, Attachment 3.

⁴⁸ This may seem like an anomalous result given that one factor moves from 50% to 60%, and the other moves from 40% to 60%, but the reason for the significant further increase is that Mr. Low’s original estimate assumes only 25% of the production if non-AvGas war-related production, but the second adjustment modifies this to all non-AvGas production, thus from a cost perspective, small changes in share have a magnified impact as compared to Mr. Low’s original analysis and further illustrate why is outcome is so extreme.

⁴⁹ As Mr. Low knows from having his testimony on the subject excluded in *Westwood Squibb*. See *New York v. Westwood-Squibb Pharmaceuticals, Inc.*, Civ. No. 90-CV-1324, 2001 U.S. Dist. LEXIS 11765 (W.D. N.Y. June 23, 2001).

determine whether being an owner, versus being an operator, “means something” under CERCLA and specifically as it relates to allocation. Mr. Low’s analysis implies it does not. I would differ.

Likewise, the Court will have to determine just how much control was exercised by the U.S. during the war period. It is clear – since both Mr. Low and I both ascribe shares to the U.S. – that we acknowledge there is a degree of involvement or control, the question is “how much” and how to use that in parsing the allocation as between the U.S. and Exxon during the relevant period. I assert that the control is significant; indeed, it may be uniquely nearly “total” control in that these plants are operated under the threat of seizure – something that only a governmental authority can undertake.

TIMEFRAME FOR ANALYSIS

Mr. Low criticizes my analysis for ending in 1985.⁵⁰ As a general matter, most of the areas where costs were incurred discontinued use by 1985.⁵¹ There may be exceptions, but they are not the bulk of the costs. Second, by the mid-1980s the impact of an incremental year on the analysis is negligible given programs to address contamination that have been in place for decades.

I have evaluated the sensitivity of this issue, and provide that in **Appendix A**. If the time period for all Baytown Refinery elements were extended from 1985 to 1995, for example, it would adjust the U.S. share by less than 1 percentage point.⁵²

RESIDUAL CONTROL DURING “THE GAP” YEARS

The nature of the relationship between the U.S. and XOM during the World War II period was unique. No private party, acting as a “co-operator” could have exerted the unique level of control that the government did. Decisions were made by the government, and executed by the refineries accordingly (under constant threat of seizure). Raw materials were provided only as needed to make specified products. Decisions on operational issues and process improvements were at the discretion of the government. These plants were reconfigured specifically to produce AvGas and other products designated by the government. They were prohibited from making process improvements that would address the increasing levels of contamination. And then the government left.

⁵⁰ See Low Rebuttal Report, footnote 5.

⁵¹ See also discussion in Gagnon Rebuttal Report, Section 4.0, Rebuttal Opinion 2, Additional Rebuttal Opinion 4.

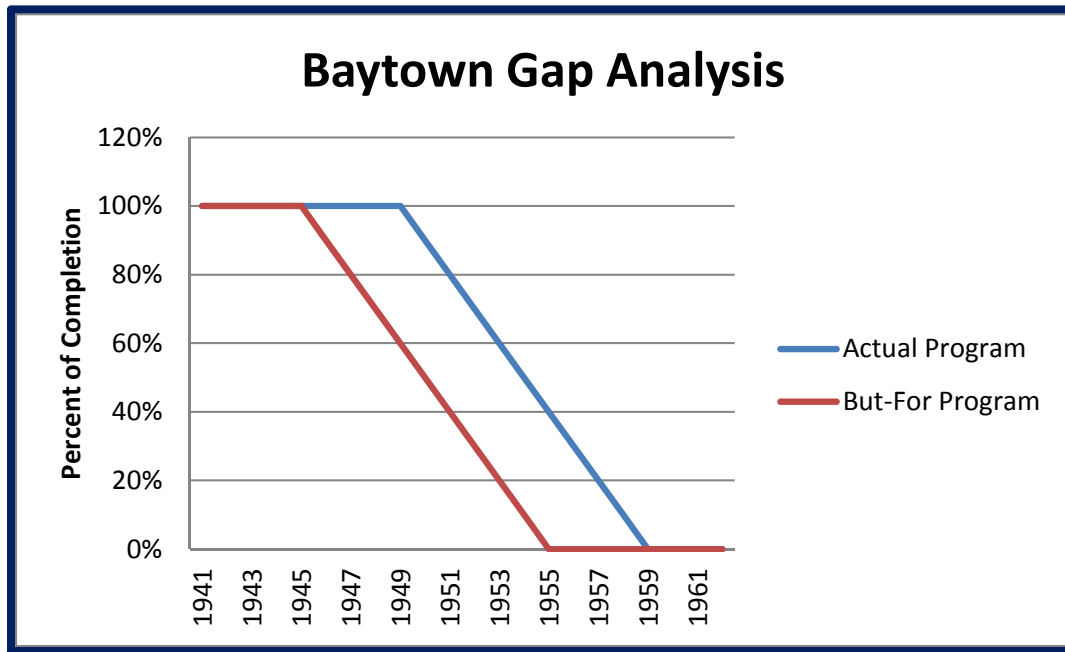
⁵² Even in Mr. Low’s analysis not all costs are extended beyond 1985. Taking this into account would further reduce any impact.

And in leaving, it left these facilities with a need to address contamination, which the refineries then undertook. But these activities were delayed by the war effort, and what the gap analysis addresses is the incremental impact of these government-directed delays.⁵³ The Court will have to determine whether these delays (and their impact on contamination) are the vestige of the government control of these plants during World War II, and if so, how those impacts should be apportioned. My analysis quantifies those impacts, and apportions them consistent with the allocation during the period when these delays were made.

The gap analysis does not assign all of the costs to the U.S.; rather, it calculates the impact of the delay in setting up the cleanup program and assigns the delay increment to both parties at the same share basis as they were assigned during the World War II years (during which the delay occurred). Graphically, this is shown in **Figure 5**. The “But-For” program is the actual program, but implemented when requested, whereas the “Actual Program” is the program that later occurred. At any given year the vertical distance between these two is the gap or delay element.

⁵³ This issue is addressed in both of the Gravel reports.

Figure 5
Impact of Delay at Baytown



The value of the delay or gap is calculated in [Table 4](#).

TABLE 4					
BAYTOWN GAP ANALYSIS					
Year	Actual Program		But-For Program		Gap
	At Beginning of Year	At Mid Year	At Beginning of Year	At Mid Year	
1941	100%	100%	100%	100%	0%
1942	100%	100%	100%	100%	0%
1943	100%	100%	100%	100%	0%
1944	100%	100%	100%	100%	0%
1945	100%	100%	100%	95%	5%
1946	100%	100%	90%	85%	15%
1947	100%	100%	80%	75%	25%
1948	100%	100%	70%	65%	35%
1949	100%	95%	60%	55%	40%
1950	90%	85%	50%	45%	40%
1951	80%	75%	40%	35%	40%
1952	70%	65%	30%	25%	40%
1953	60%	55%	20%	15%	40%
1954	50%	45%	10%	5%	40%
1955	40%	35%	0%	0%	35%
1956	30%	25%	0%	0%	25%
1957	20%	15%	0%	0%	15%
1958	10%	5%	0%	0%	5%
1959	0%	0%	0%	0%	0%
1960	0%	0%	0%	0%	0%
1961	0%	0%	0%	0%	0%
1962	0%	0%	0%	0%	0%

Mr. Low, in criticizing my gap analysis, notes “In my opinion Mr. Whites assumptions are misplaced and without any meaningful foundation, and his methodology for applying these assumptions is not

supported by any logical analysis or treatment of facts.”⁵⁴ Unfortunately, Mr. Low himself appears to be the one who has not considered the facts that support a delay component.

The delay component is completely consistent with the activities that took place after World War II to address waste processing and disposal systems and practices neglected by the Federal government and industry at the expense of the production of war products. In fact, as the owners of industrial facilities themselves, the Federal government embarked on a program similar to the one implemented by XOM at its Baytown and Baton Rouge facilities during the same timeframe to upgrade waste processing and disposal facilities at Federally-owned rubber plants.

World War II brought about major changes that caused or exacerbated pollution in America:

- A significant increase in industrial development;
- The lack of construction of municipal or industrial waste treatment works between 1940 and 1947 because of the diversion of men and materials to support the war effort; and
- The introduction of technological innovations that introduced a wide range of new types of contaminants into waste streams.⁵⁵

The need to address the industrial waste problem after the war ended was generally accepted by state agencies, the Federal Government and many industries.⁵⁶ While World War II diverted attention and resources from the problems associated with industrial waste,

The industrialists of the nation now generally realize that it is a part of their responsibility to see that their own plant wastes do not cause deterioration and to improve the conditions of the streams. The great majority of them now accept this as a basic factor and provide for the necessary works as an integral part of the initial plant

⁵⁴ See Low Rebuttal Report, page 17.

⁵⁵ M.D. Hollis, “The Water Pollution Image,” in *Proceedings of the National Conference on Water Pollution*, December 12-14, 1960, p. 32.

⁵⁶ For example, the association of State Sanitary Engineers passed a resolution on water pollution abatement in its 1946 annual conference. The text of the resolution was published in Abel Wolman, “State Responsibility in Stream Pollution Abatement,” *Industrial and Engineering Chemistry*, May 1947, p. 564; In 1947, Thomas Parran, of the U.S. Public Health Department noted, “Since wartime shortages of materials and manpower are beginning to diminish, modernization and construction of treatment plants can now go beyond the planning stage.” Thomas Parran, “The Public Health Service and Industrial Pollution,” *Industrial and Engineering Chemistry*, May 1947, p. 560; An example of industry’s acknowledgement of the need to address pollution issues can be found in Pennsylvania Chemical Society symposium “Chemists Meet to Discuss Waste Treatment,” which included discussions on oil refinery wastes and other industries.

constructions. This is a sensible and humanitarian approach to the problem and it usually results both in economies in initial cost and good will on the part of the people, the community officials, and the authorities of the local health department.⁵⁷

Specific to the oil industry, Humble noted, “During the war it was not possible to devote much technical manpower to the problem of effluent improvement since it was obvious that saving surface waters was secondary to saving men. As soon after the war as manpower became available, the Humble Oil and Refining Company investigated the entire disposal problem.”⁵⁸

As an owner of the synthetic rubber plants the Federal government through the Rubber Reserve Company (RRC) also recognized the importance of undertaking these activities to improve its facilities. As I noted in my original report (and as discussed in detail in Mr. Gravel reports),⁵⁹ the Federal government initiated its programs by retaining Mr. Shepard Powell to undertake an investigation and make recommendations to improve waste processing and disposal systems at its plants by implementing a series of improvements to reduce or eliminate pollution particularly as it related to discharges into surface water bodies such as Scott’s Bay and Monte Sano Bayou.⁶⁰ The Federal government’s waste improvement program was implemented virtually simultaneously with the programs initiated for the same purpose by Humble and SOLA in the Baytown and Baton Rouge refineries and lasted at least into the early 1950s.⁶¹ Provided below is a table that provides examples of activities that illustrate the parallels between Humble, SOLA and the federally initiated activities.

⁵⁷ See Edmund Beesselievere, “What Constitutes a Waste Problem,” *Industrial Waste Treatment*, 1952, at page 6.

⁵⁸ See S.O. Brady, “Effluent Improvement Program at Humble’s Baytown Refinery,” *Proceedings of the Ninth Industrial Waste Conference*, May 10-12, 1954, BAYC-00013616.

⁵⁹ See Gravel Report at pp. 102-109 and 200-204; This is also addressed in Mr. Gravel’s rebuttal report.

⁶⁰ See Report to the RFC on Industrial Wastes, RUR-SR 40, Copolymer Plant, Baytown, July 31, 1946. BAYHIS-0000134-145; See also RUR-SR 43, Butyl Rubber Plant, Baytown, July 26, 1946. BAYHIS-00006386-395. See also RUR-SR 10, Butadiene Rubber Plant, Baytown, July 26, 1946. BAYHIS-00006438-447; See also RUR-SR 29, Butadiene Rubber Plant, Baton Rouge, September 19, 1946. BRHIS-00000589-596; See also RUR-SR 15 and 158, Butyl Rubber Plant, Baton Rouge, September 18, 1946. BRHIS-0000931-941; See also RUR-SR 41, Copolymer Rubber Plant, Baton Rouge, September 19, 1946. BRHIS-00000001-9.

⁶¹ See, *e.g.*, Refinery Loss Committee, April 16, 1948. MIS-00028099-28103. See also Central Refinery Loss Committee, April 29, 1949. MIS-00028251-278.; See also Refinery Loss Committee, March 31-April 4, 1952. MIS-00031624 – 667.

Facility	Waste-related Activity	Date of Activity
All RRC Rubber Plants	The RRC initiated an independent analysis of waste disposal practices	Initiated 1946. ⁶²
RRC Butadiene Plant, Baytown, Plancor 485	New gutter required to provide a drain to the oil sewer to collect lubricating oil that was spilled at the gas compressor houses on the south side of Dehydrogenation Units A & B	Approved March 4, 1946. ⁶³
RRC Butadiene and Butyl Baytown Rubber Plants, Plancors 485 and 1082	The RRC approved the installation of equipment (sewers, pumps, chemical treatment facilities etc.) to improve the effluent system from the Butadiene and Butyl plants at Baytown.	Approved October 1, 1948. ⁶⁴
RRC Butyl Plant, Baton Rouge, Plancor 572	The RRC approved the installation of a 20- by 30-foot separator at the outlet of the 72-inch sewer from the Butyl Rubber plant	Approved May 18, 1949. ⁶⁵
RRC Butadiene Plant, Baytown, Plancor 485	The RRC approved the installation of mechanical scrapers and sludge pumps on the existing separator and a sludge line from the pump to the existing lagoon at the Butadiene Plant	Approved June 2, 1949. ⁶⁶
RRC Butyl Plant, Baytown, Plancor 1082	The RRC approved the installation of a system to treat cupric ammonium acetate solution and the equipment to deliver the treated waste stream to the Butyl Plant's flocculator	Approved June 2, 1949. ⁶⁷
RRC Butyl Plant, Baytown, Plancor 1082	The RRC approved the installation of three coolers to treat boiler blowdown water and a pit for aerating the stream with piping to convey it to the neutralizers at the Butyl Plant	Approved June 2, 1949. ⁶⁸
RRC Butyl Plant, Baton Rouge, Plancor 572	The RRC approved the installation of a sewer line and catch basin associated with 12,000 Barrel Hortonsphere	Approved October 20, 1951. ⁶⁹
All three RRC Plants, Baytown, Plancors 877, 485 and 1082	The RRC approved the installation of a cement-lined sewer from the south end of the three rubber plants 9-feet in diameter to Scott's Bay	Approved January 15, 1953. ⁷⁰
RRC Butyl Plant, Baytown, Plancor 1082	The RRC approved the installation of additional effluent facilities, including effluent storage basin, sump	Approved April 13, 1954. ⁷¹

⁶² See George Hebbard, Sheppard Powell, and R.E. Rostenbach, "Industrial Wastes: Rubber Industry," *Industrial and Engineering Chemistry*, May 1947, p. 592. MISC-00014797.

⁶³ Approved BAYHIS-00016273, Scope BAYHIS-00016274

⁶⁴ Approved October 1, 1948 BAYC-00003377; Scope BAYC-0003375-3376.

⁶⁵ RFC Service Order BRC-00007746; Specifications BRC-00007748-751.

⁶⁶ Approved June 2, 1949 BAYC-00003370; Scope BAYC-00003368.

⁶⁷ Approved June 2, 1949 BAYC-00003370; Scope BAYC-00003368.

⁶⁸ Approved June 2, 1949 BAYC-00003370; Scope BAYC-00003368.

⁶⁹ Approved October 19, 1951 BAYC-00008363; Catch Basin Shear Gate and Sewer Line BAYC-00008385.

⁷⁰ Approved January 15, 1952 BAYC-00008671; Scope BAYC-00008678; Specifications BAYC-00008691-695.

⁷¹ Approved April 13, 1954 BAYC-00002325; Scope BAYC-00002330; Specifications BAYC-00002341-2349.

As illustrated by the activities outlined above, the Federal government's program was initiated during the same timeframe as the Humble and SOLA programs and was aimed at addressing similar issues. Namely, the improvement of inefficient facility waste disposal systems that could not be addressed during the Wartime period.

THE CONTRACT ISSUE

The contract issue is one that the Court itself will decide. My calculations quantify the position taken by counsel for XOM: that the contract is not itself limited to AvGas but extends to other products and activities that relate to AvGas production. In my view, the calculations I have provided correctly calculate the incremental value of the contract.⁷²

By contrast, Mr. Low presents a very narrow reading of the contract, which I presume represents the position of the U.S.

FUTURE COSTS

With regards to other areas where I have developed a basis for a future cost allocation (*e.g.*, plancors into Scott's Bay), Mr. Low correctly notes that these are areas that have not yet incurred any significant costs (although some areas have already incurred study and investigations costs). Nonetheless, I have developed a framework based on the available data to data to provide the Court and the parties with my best estimate, to date. Implicitly, these analyses assume that any remediation action will relate directly to the waste contributions I have calculated. Having reviewed Mr. Low's reports, I have no basis to make any changes to my analyses for these areas.

SENSITIVITY ANALYSES

In **Appendix A** I have provided a sensitivity analysis to examine the timeframe issue (where Mr. Low criticizes my work for not extending beyond 1985).

As shown in my original report (Appendix D-1), by 1985 a year was assigned 0.28% of the cost distribution. Consequently, each incremental year added a negligible impact. As shown in **Appendix A**, adding data up through 1995 (instead of my 1985 cutoff), modifies the allocation to the U.S. only marginally (less than 1 percentage point, approximately \$400,000). This calculation assumes that all

⁷² It should be noted that if the Court modifies my allocation, but adopts my production-based distribution of costs, given XOM's view of the contract, there may be a net zero impact (*i.e.*, it may modify the direct allocation within a year but simply push that impact into the corresponding contract adjustment).

costs extend through 1995. Mr. Low does not extend all costs through 1995, so this calculation overstates the impact to the issue he raises.

For Baton Rouge, where by 1985 the year is assigned 0.006% of the cost, the impact would be far less. Also in Mr. Low's analysis, he extends Baton Rouge costs through 1988 (an additional 3 years). As such, this will have almost no impact on the allocation results (approximately \$10,000 and 0.04% to the refinery component).

ERRORS AND DEFICIENCIES IN MR. LOW'S REPORT

See the Low Report Baytown Analysis (Low Report, Attachment 3).⁷³ The "Multipliers" Table provides Mr. Low's estimates of the relative output associated with various elements. Here is where his analysis assigns a 14% share to AvGas (prior to the 50% reduction to 7%) and a 25% share to Other War Products. As a consequence of this analysis, Mr. Low determines that the residual 61% (100% less 14% less 25%) of plant production is unrelated to wartime production or control. Assuming, *arguendo*, that this is valid, the impact of his further reduction by 50% down to a 7% share for AvGas – without subsequent recalibration of shares – results in an erroneous allocation: one that sums to less than 100% of costs as between all relevant parties. Specifically, Mr. Low concludes that 100% of the waste generation is obtained from 93% of plant production because half of the AvGas identified is allegedly produced from shipments of materials made offsite that do not contribute to contamination, thus each share must be recalibrated and Mr. Low fails to undertake this adjustment to his analysis. Since the results in this table are used throughout his analysis, all subsequent results are in error.

The value assigned to "other war products" is listed as 25% in the table, but listed as 20% throughout his text. This discrepancy cannot be explained by any attempted adjustment for the error identified above (related to reduction in AvGas). The analysis uses 25% and I assume that repeated references to 20% elsewhere in the report are in error.

The "Response Cost Impacts" Table contains several errors. First, the calculations for "Velasco Street Ditch" list a total of 135.42% which indicates that one or more of the values in that column are in error. Further, while there are years assigned to each period on either side of the 1950-53 time period, that period is assigned 0 years, which is an error. It appears that the year values are meant to match those

⁷³ I have not developed a complete list of Mr. Low's errors or discrepancies. In many instances what I identify for Baytown has a corresponding error in his Baton Rouge analysis.

associated with the refinery groundwater calculations (which sum to 68 years), but the shares ascribed to each period is based on a denominator of only 48 years (which appears to match the canals area calculations). Assuming that the years are correct (with the inclusion of a 3 year value for the missing years in 1950-53), the shares assigned to each year are in error. The resulting 2.20% assigned to this cost element is also in error.

Note that while the table identified above assigns a 2.20% share to the Velasco Street Ditch area, other tables in the analysis assign a 1.81% share to the area, demonstrating that the tables are not “linked”. Further, while the calculations directly above the 2.20% are clearly in error, the corrected value is in fact 2.20% which indicates that the calculations in the table are not the source of the result. Moreover, the table identifying a 1.81% result is also clearly an error.

The SMWU Investigation section indicates that the relevant timeframe for the analysis is 1931-1959 – a total of 29 years, but the analysis itself is clearly based only on 22 years and appears to begin in 1938 and run through 1959. I assume that the titles are in error as they do not match the calculated shares.

In making his SMWU-related calculations, Mr. Low examines start and end dates for various SMWUs and then “averages” them without weighting them leading to erroneous time periods. Further, Mr. Low is inconsistent in how he purports to develop his results. For example, at SWMU 72 the period 1927 to 1947 – 1956 is determined to be 1926-1952, while at SWMU 73 1930 to 1947 – 1956 is determined to be 1930-1947. Years are “shifted” in some calculations, and averages of year ranges are not addressed consistently. Finally, Mr. Low concludes that 50% of investigation costs are related to wartime SMWUs but his analysis fails to examine the relative size of the SMWUs when in fact those 11 wartime SMWUs represent approximately 68% of the total acreage.

The Canals analysis references the period 1928-1995 in the text, 1928-1994 in the table itself, yet appears to make calculations in the same table based on 1928-1995. I have assumed that the intent was to use 1928-1995 in the calculations and that the table description is in error.

The analysis uses the 1942-1990 timeframe for Baytown Ordnance Works-related costs (a total of 49 years), yet the narrative of the report indicates that the timeframe is 1942-1993 or a total of 52 years.

With respect to the Plancors, the narrative indicates a timeframe of 1942-1955, while the “Multipliers” table indicates that analysis begins in 1943. However, the actual calculations begin in 1942, so I assume

the description in the multipliers table is in error. The share assigned to the plancors in the multipliers table is 6%, but in the narrative data are evaluated to derive an average of 5% (4% in the 1942-1945 period, 5.3% in the 1946-1955 period).

Mr. Low's report provides his estimate of crude oil by year but these data appear to be a mix of capacity and actual use data, without calibration, whereas my analysis consistently employed reported capacity data. By mixing the different data, without calibration, the resulting distribution (*i.e.*, shares) will be distorted and to the extent that these miscalculated shares are then employed in subsequent analysis, they too become miscalculated. In reviewing some of the crude oil data employed by Mr. Low I found a series of poorly-sourced data, in tandem with data whose citations were simply in error. Moreover, some of the documentation identified was not provided as part of Mr. Low's document set.

CONCLUSIONS

The analysis supplements my earlier report and provides a summary of the opinions and underlying analysis that I anticipate providing at trial.

This report is based on information provided to me as of December 17, 2012.

RICHARD LANE WHITE

APPENDIX A

SENSITIVITY ANALYSES

APPENDIX A				
SENSITIVITY ANALYSIS TO EXTENDED TIMEFRAME				
	1985	1988	1990	1995
Baytown				
Assigned Cost	\$ 20.3		\$ 20.0	\$ 19.8
Assigned Share	31.68%		31.30%	30.99%
Impact on Cost			\$ (0.2)	\$ (0.4)
Impact on Share			-0.38%	-0.69%
Baton Rouge (Refinery)				
Assigned Cost	\$ 7.0	\$ 6.9		
Assigned Share	20.9%	20.9%		
Impact on Cost		\$ (0.01)		
Impact on Share		-0.04%		

APPENDIX B

DOCUMENTS RELIED ON

Expert Reports

Beath Rebuttal Report
Brigham Rebuttal Report
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 BAYHIS-00016274
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 BRC-00007748-751
 Central Refinery Loss Committee, April 29, 1949. MIS-00028251-278.; See also Refinery Loss Committee, March 31-April 4, 1952. MIS-00031624 – 667
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